

# **PULP & PAPER**

JULY 1958

**Russia May Miss Goals**

page 39

**Cost Reduction Techniques**

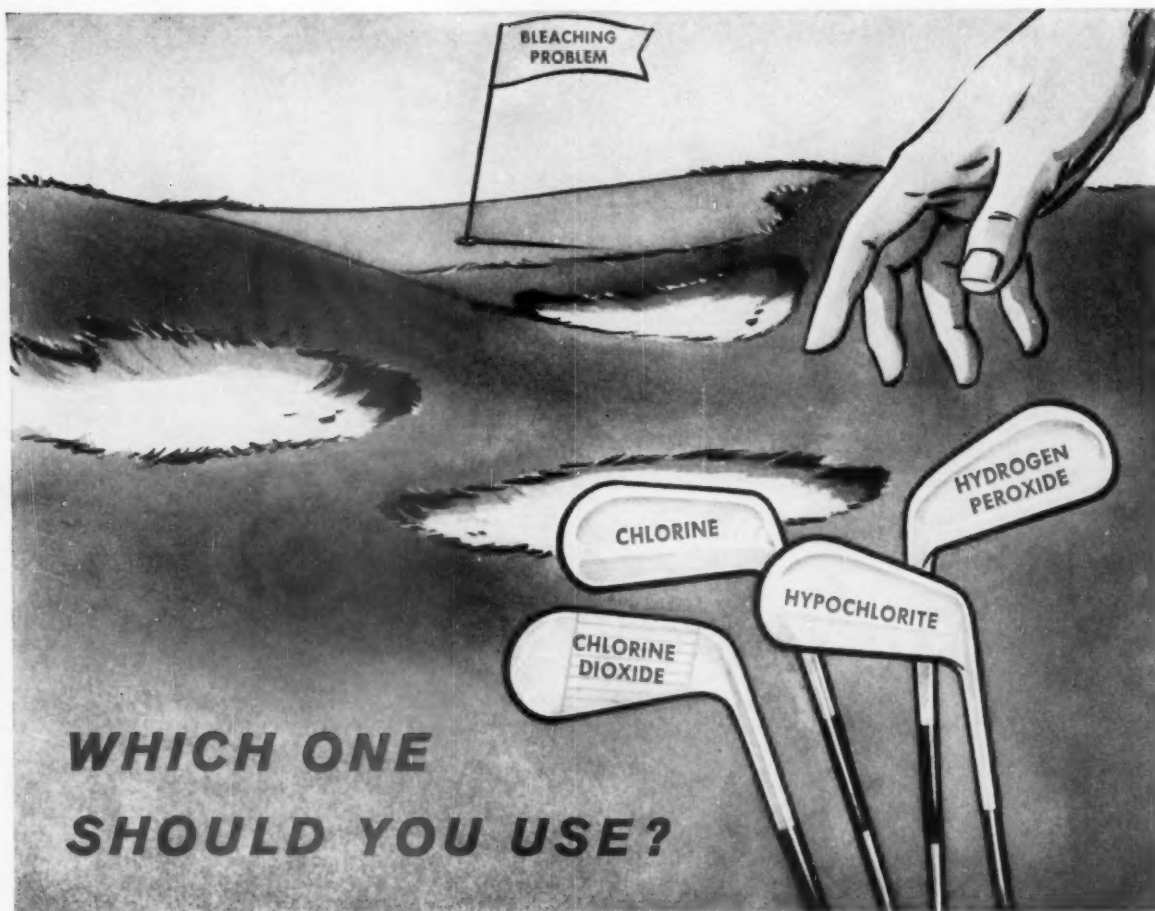
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**Coating Keeps Growing**

page 50



**\$ COSTS \$ VALUES \$ TAXES \$**  
See Page 81 - 1958 PULPWOOD ANNUAL



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Canadian Manufacturers of Bird Machinery  
CANADIAN INGERSOLL-RAND COMPANY, Limited, Montreal

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How the "Pulpwood Section" started; Hats off to APA; Russian journal succumbs to advertising

### U.S.S.R. Unlikely to Attain Paper Goal 39

Verdict is reached by Institute of Paper Chemistry specialists in study of Soviet's own literature. Advances in chemistry are offset by backwardness in engineering and equipment. President Strange sees need for more Institute graduates in future

### Effective Methods for Reducing Costs 47

AP&PMSA (soon to be renamed PIMA), in Boston convention, hears how Scott does it with budgets and how Kimberly-Clark trains foremen for cost control job. Harvard Business profs and President Chandler of Standard Packaging offer techniques.

### Coating is Still Growing 50

Behind the scenes at TAPPI's Ninth Coating Conference were two big currents. Many Southern kraft mills are poised for the coating plunge. More and more mills are using trailing blade coaters.

### New High Yield Pulping Concept 54

Southern Paperboard Corp. pioneers again at Georgia operations. Also installs a continuous tall oil system and rebuilds 234 in. machine.

### In This Issue—More than 40 Pages on SIGNIFICANT PULPWOOD DEVELOPMENTS

Again in this July issue, PULP & PAPER presents heretofore unpublished papers of the annual meeting of the American Pulpwood Association. Main 1958 themes are how to lower wood costs and financial problems relating to land values, taxes, etc.



W. S. Bromley  
APA Exec.  
Secy.-Treas.

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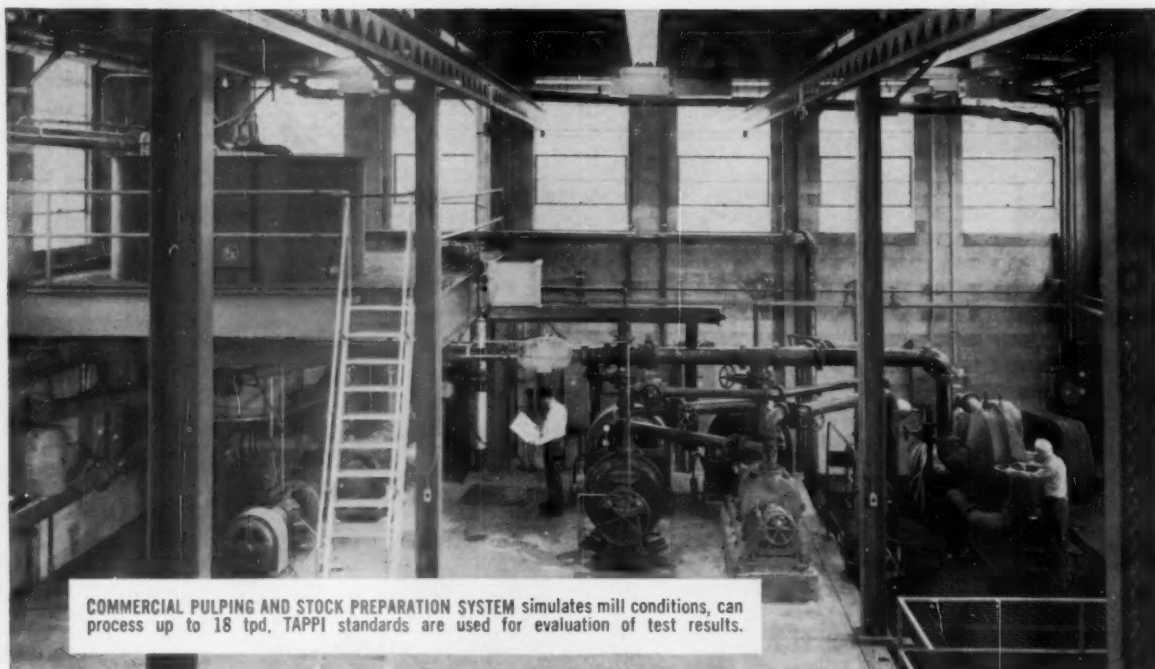
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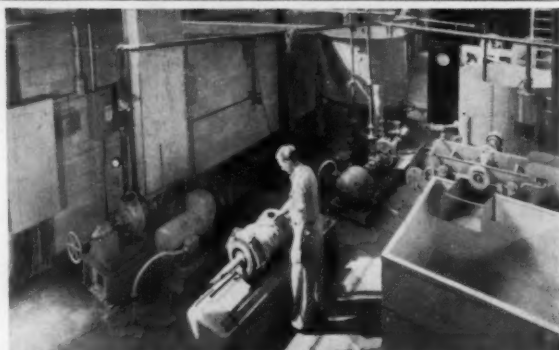
The Pulp and Paper Research Centre is Bolton's newest service to the Papermaker. As a contribution to the industry, the Centre conducts basic research and analysis in fibre treatment and stock preparation systems as well as machine and process design.

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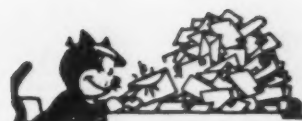
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PULP & PAPER — July 1958

# The Editor Reads His Mail



Address letters to The Editor, PULP & PAPER, 1791 Howard St., Chicago 26, Ill.

## How Fiber Boxes are Sold

—Detroit

Editor: I read with interest your June article reporting the speech by Chicago Tribune's Mr. Martineau and the pro and con comments of fiber box industry leaders.

I doubt very seriously whether his idea to make products glamorous and distinctive and "simply snow under competition with promotion and advertising" would have much effect on the one man who buys most paper boxes.

This one customer is the purchasing agent.

Mr. Martineau mentioned Scott Paper Co. and Kimberly-Clark Corp. It is quite different with them. They sell their trade marked products via advertising to the ultimate consumers, the public.

G. V. BANCROFT

## What Happens When An Industry Cuts Prices

—Chicago

Editor: I was very interested in seeing what you did with my thesis at Fibre Box Assn. meeting (PULP & PAPER polled 20 industry leaders on their reactions to Mr. Martineau's advice that the box industry build up a "superiority complex"—using design, color, styling, advertising, etc., to create and hold buyer loyalty and avoid cutting prices. June issue, p. 55.)

I have been very much interested to note what has happened in industries where price cutting has been prevalent, such as basic metals and petroleum. The price of copper has fallen apart, and this is similarly true in the aluminum industry, yet the demand has not increased at all. The annual statements of the petroleum companies reflect this loss of profit with no gain in sales whatever.

PIERRE D. MARTINEAU

Director of Research and Marketing  
The Chicago Tribune

## Poland Offers Information

—Warszawa, Poland

Editor: In your 1957 WORLD REVIEW NUMBER, in the article concerning production and foreign trade

of paper and woodpulp in Poland, we have found a number of errors and inaccuracies.

We wish to draw your attention to our publications: "Rocznik Statystyczny" (statistical year book) and the monthly "Biuletyn Statystyczny" (statistical bulletin), where you might find statistical data in regard to the above mentioned problems.

I. MICZNAK,  
President, Główny  
Urząd Statystyczny

Eds. note—PULP & PAPER tried to get official data from Poland. No response. We have a good report, however, for the 1958 REVIEW. Statistics on Poland's pulp and paper industry in the 1957 REVIEW, we believe, were close approximations from reliable observers and experts in neighboring countries. In the 1958 WORLD REVIEW NUMBER we expect to use the sources suggested by Mr. Micznak.

## With Roses, a Little Thorn Which We Deserved . . .

—Chillicothe, O.

Editor: Your latest college recruiting article was quite informative and I was particularly interested in the excerpts from the Continental Oil Co.'s booklet "Selection Guide, College Recruits."

By the way, your Monthly Report was in error in stating that Mead's Harriman, Tenn., mill is in "moth balls." It is the Nashville, Tenn., mill which has been shut down. My friends at Harriman are going to be unhappy about finding they are not producing any .009.

KEITH G. RASMUSSEN  
College Recruiting Coordinator  
The Mead Corp.

Eds. note—We are sorry, and hope Howard Wehr, division mgr. at Harriman, and his colleagues will still be our friends, too.

## Engineer Votes Approval

—Minneapolis

Editor: You publish an excellent magazine and I enjoy reading it.

J. H. DAVIDSON  
Chief Engineer  
Minnesota and Ontario Paper  
Co.



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## General Outlook

"WE'RE GOING TO SEE ENTIRELY NEW WAYS OF MAKING PAPER," said A. LeRoy Bolton, Jr., treas., John W. Bolton & Sons Inc., at opening of the firm's new \$250,000 research center (story in this issue). The new center, signifying confidence in the industry's tremendous growth factor, will develop machinery to bring laboratory progress to the production stage.

GROWTH FORESEEN . . . In his annual report at the Institute of Paper Chemistry's Executives Conference, Institute Pres. John G. Strange predicted more graduates will be welcomed in the next few years on the basis of predictions of another industry boom (story in this issue).

CHEVROLET DECIDES TO STICK WITH RAYON TIRES. This action was good news for dissolving woodpulp industry. It touched off price cuts on nylon yarn but no price cut in nylon tires appears likely. Tire cord is rayon's biggest single market, accounting for 310.5 million lbs., or about 36% of all rayon shipped in the U. S. last year.

FINAL DRAFT OF U.S. FOREST APPRAISAL. . . . U.S. Forest Service has issued the final draft of its much-discussed Timber Resource Review. First survey figures of this latest appraisal came out a couple years ago. Final draft, 700 pages, \$7. U.S. News & World Report headlines its story on it: "Warning: Timber Shortage Ahead." Actually the text says nothing of the sort.

U.S. FOREST SERVICE TO TALK WITH SMALL OWNERS. . . . A series of conferences with small forest owners on problems of small ownership is a major policy program now being launched by the USFS. The Timber Resource Review shows poorest management is on small lands.

MORE THAN 40% OF SALES WERE OUTSIDE U.S. . . . Caterpillar Tractor Co. reports in 1957 more than 40% of its sales were made in countries outside the U.S. Managers of foreign sales report good potential markets.

## New Mills and Mill Plans

PLAN EXPENDITURE OF \$14 MILLION. . . . Scott Paper Co., anticipating 1958 sales increase over the \$275 million reported in 1957, plans to spend over \$14 million on plant machinery and equipment this year. This doesn't include cost of a proposed new research center and office building. . . .

EXPERIMENTAL PLANT NEAR STARTUP. . . . Half million dollar plant, started last year primarily as stream improvement measure by Consolidated Water Power & Paper Co., Wisconsin Rapids, Wis., is due to start soon. Will use first commercial scale installation of Western Precipitation Corp. process to recover chemicals and heat from spent liquor. One sulfite digester is being modified from conventional calcium-base to sodium-base sulfite pulping. If successful, Consolidated will expand the plant to process all recoverable sulfite and semichemical liquor at Wisconsin Rapids, converting all pulping to sodium-base. . . .

Please turn page for more



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**H<sub>2</sub>O<sub>2</sub> bleaches brighter and whiter...**

Experience shows that hydrogen peroxide is an effective bleaching agent for chip-groundwood pulps of all regions in this country.

It gives high brightness, low yellow color, excellent reversion resistance and preserves high yield.

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**"CAROLINA BELLE" STARTS UP.** . . . Riegel's new 236-in. wide bleached board machine started up June 3, making salable paper within 48 hours. Production: 300 tpd of high grade foodboard for food packaging, drinking and food cups, folding cartons, including crush-proof cigaret box. Also to be produced are special papers for tabulating cards, shipping tags, linerboard and advertising printing. . . .

**CROWN Z EXECS VISIT PROPOSED MILL SITE.** . . . E. W. Erickson, vp-mfg. and construction, Vertrees Young, vp and gen. mgr.-Gaylord operations, Fred Helversen, mgr. industrial engineering, W. J. Lowndes, chief engr., central engineering, Dean Bowman, coordinator of long-range planning, and E. P. Stamm, CZ general consultant, made a flying trip to Newfoundland where the firm holds an agreement to decide within two years whether to build a 200-ton/day (minimum) to 400-ton newsprint mill within five years. . . .

**EXPANSION ONE-THIRD COMPLETE.** . . . Hammermill Paper Co., Erie, Pa., reports good progress on five major projects now under way—wood preparation and cooking for Neutrancel, sulfite mill modernization, finishing room expansion, power plant addition, and new administration building. . . .

**BIG MACHINE SOON STARTS.** . . . Great Lakes Paper Co.'s new Black-Clawson 342-in. newsprint machine will soon be in operation at Fort William, Ont. Rated production of this giant is 350 t.p.d. The sheet is as wide as 22 typical newspaper pages. Two top-press rolls are 50 in. in diameter and 350 in. long, weigh 75,000 lbs. apiece. There are about 150 rolls of other types. . . .

**BEGIN MILL ADDITIONS.** . . . Work has begun on two additions to house expanded finishing, shipping and warehouse facilities at the Nekoosa, Wis., mill of Nekoosa-Edwards Paper Co. . . .

**MULTI-MILLION DOLLAR PLANT OPENS.** . . . Flintkote Co. opened a new Insulrock plant at North Judson, Ind., annual capacity 60,000 tons. Chairman I. J. Harvey Jr. says it is a step to "meet current building demands and prepare for construction needs of the 1960's."

**WILL REBUILD SORG MACHINE.** . . . The Sorg Paper Co., Middletown, O., is proceeding on a \$650,000 project to rebuild and modernize its No. 4 Fourdrinier fine paper machine. Manchester Machine Co. is supplying the equipment. . . .

## Other News

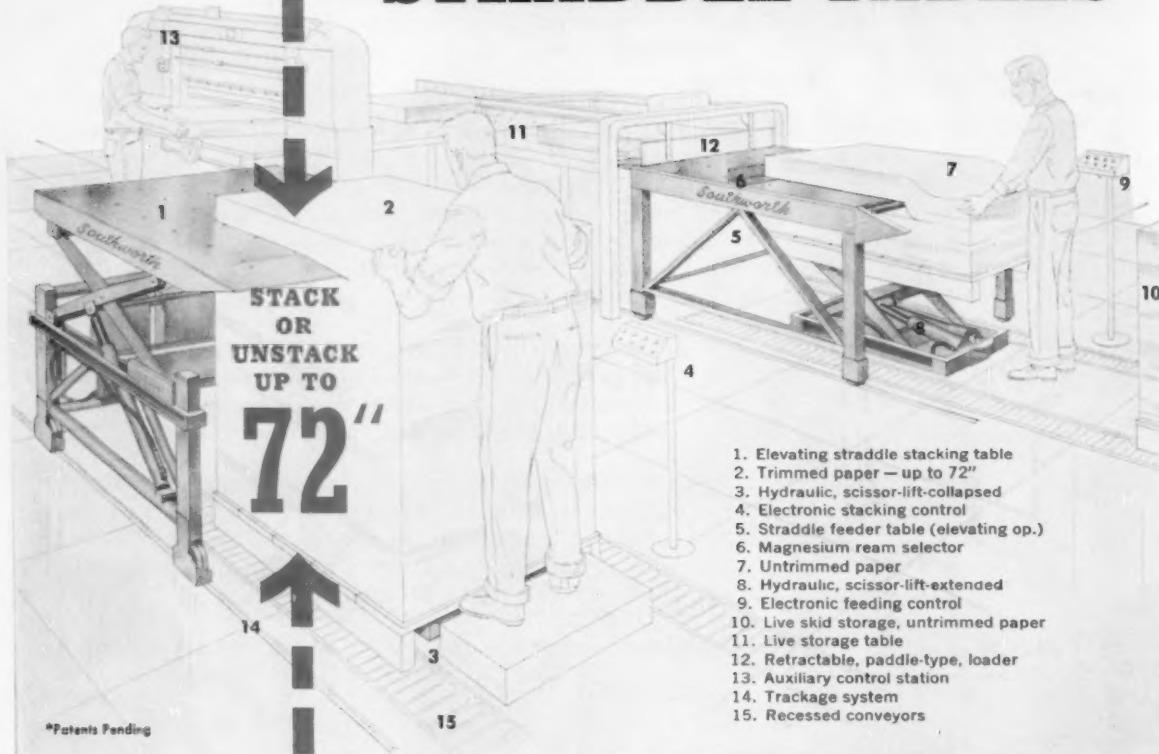
**NO CHANGE IN COAST WAGES.** . . . A 14-day labor-management meeting, at Portland, Ore., representing 44 West Coast mills has recessed with no change in wage rates. The manufacturers maintained this is not the year for increases and that the present contract should be extended 12 months. The unions agreed to recessing with the understanding the conference can be reconvened at a later date.

**WOODFIBRE, B.C., MILL CLOSES.** . . . Operations at the Woodfibre, B.C., dissolving pulp mill of Alaska Pine & Cellulose, Ltd., have been indefinitely suspended. W. E. Breitenbach, executive vice president, says "decline in the demand for grades of cellulose produced at Woodfibre, a severe drop in shipments to Japan, and extreme competition from new plants owned by customers necessitated the shutdown."

Please turn page for more



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minimum capital investment, per pair, pays off in maximum trimmer production engineered to prevent idle time, eliminate manual lifting, conserve floor space 1000 lb. capacity, sheet size 52 x 76 — air film buoyance protects sensitive stock.

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**NEW RECORDS.** . . . Two Canadian mills established records during the past month. The Crofton bleached sulfate mill of British Columbia Forest Products, Ltd., recently completed for \$46,000,000, attained a production of 539 t.p.d. (rated capacity, 425). Dryden Paper Co. at Dryden, Ont., produced 406.1 tons from its rebuilt No. 1 machine in a single day. . . .

**NEWSPRINT INDUSTRY SURVEY SHOWS NO PRICE FIX.** . . . U.S. Attorney General Rogers says his department's investigation of the Canadian-American newsprint industry turned up no direct evidence of a price-fixing conspiracy, although it found "several manifestations" indicating "inadequacy or absence of true competition."

**PAPER GARMENTS ARE REALITY NOW** . . . some are far cry from those you've seen on exhibit. For instance, comparing paper dresses made today with the early ones is like comparing a "Klein's bargain special with a Dior," one observer says. Scott, Kimberly-Clark and Johnson & Johnson are hot on trail of these non-woven paper garments. Scott is making Dura-Weave (high wet strength, great softness and flexibility). Most of it is for medical examination gowns. Costs less than laundering cloth.

**PROMISING USE OF LIGNIN BY-PRODUCT.** . . . In an article in "Rubber Chemistry and Technology," I. Sagajillo describes results of compounding various types of alkali-process lignins with natural rubber to produce vulcanizates with high tensile and tear strengths, high resilience, but inferior abrasion resistance. . . .

**MEAD SUBSIDIARY ACQUIRES OTTAWA RIVER PAPER CO.** . . . Mead Containers, Inc., subsidiary of The Mead Corp., will acquire total assets of The Ottawa River Paper Co. with plants at Toledo, O., and Flint, Mich. . . .

**GAYLORD ACQUIRES DETROIT PLANT.** . . . Gaylord Container div. of Crown Zellerbach Corp. has bought facilities for manufacture of corrugated shipping containers at Plymouth, Mich. Operations are to start early in March. CZ sold its new multiwall bag plant building at Bogalusa, La., to New York Life Insurance Co. and leased it back on a long term lease. It retained ownership of the machinery. . . .

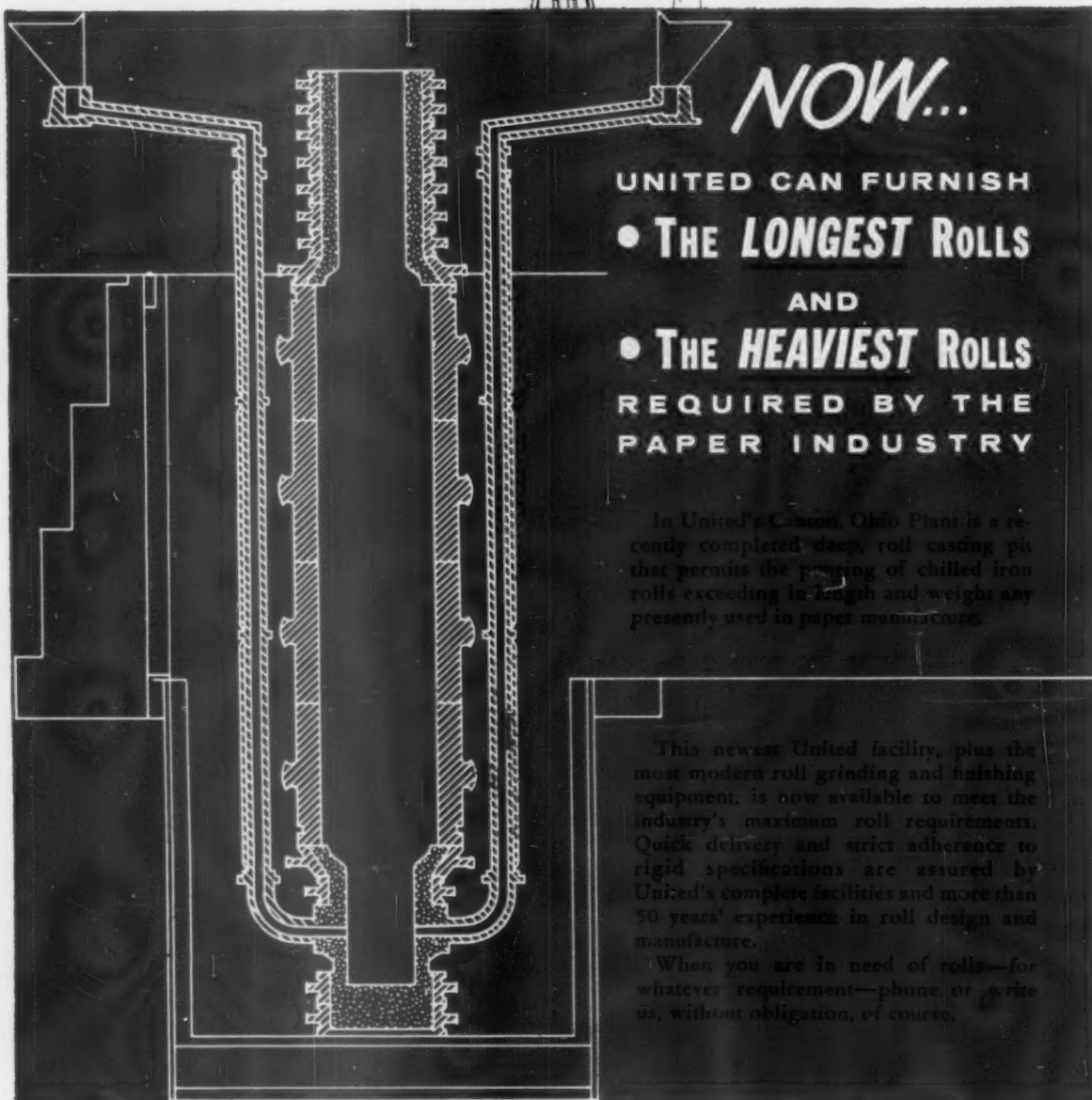
**EXPECT HOUSING GAINS TO OFFSET OTHER CUTS.** . . . F. W. Dodge Corp., construction news and marketing specialists, estimate construction contracts in 1958 totaling \$33,830,000,000, 5% above the expected 1957 level. Gains in construction contracts for housing and government-owned facilities are expected to more than offset prospective declines in industrial and commercial building contracts. . . .

**REPORT RESEARCH PROGRESS.** . . . The Sulphite Pulp Mfgs. Research League reports promising results from introducing oxygen into streams by turbine re-aeration, tried at several points along the Wisconsin River. Data has not been sufficiently evaluated to determine if it is economically feasible because of possible turbine damage and loss of power from letting air into turbine. A solvent extraction process for separating component parts from sulfite liquor is one of the most promising League by-products yet discovered. . . .

# UNITED



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**Recession Fears Recede**

Paris, France . . . Fears of a recession in the French industry have been allayed by firmer demand, particularly for wrapping, writing and printing papers, during the first part of 1958. Startup of two new newsprint machines, scheduled for this year, will probably result in increased imports of mechanical pulp.

**Hercules Moves London Office**

London, England . . . Hercules Powder Co., Ltd., has moved into permanent London headquarters at One Great Cumberland Place, London W.1; phone number is AMBassador 7766. They were at 140 Park Lane, London W.1. since 1944.

**Kraft Paper Machine Starts Up**

Pori, Finland . . . A J. M. Voith kraft paper machine was put in operation last January at the W. Rosenlew & Co., Ab Pori mill. Web width is 164 in. and maximum speed is 1,640 fpm (500 m. per min.). The pulp refining equipment is by Tampella, Finland; the electric drive by AEG, West Germany; vacuum equipment by Gebr. Sulzer, Switzerland; heat recovery plant by Suomen Puhallintehdas, Finland; rewinder by Jagenberg-Werke, West Germany; electric motors by Oy Stromberg Ab, Finland, and instrumentation and automatic controls by Oy Control Ab, Finland.

**New Spanish Mill Planned**

Madrid, Spain . . . A new company, Papelera Navarra S.A., plans to build a paper mill, probably near Pamplona in northern Spain, with annual capacity of 16,500 tons of paper and cardboard. A French firm is reported to be backing the project. The new firm plans to produce its own pulp from straw, wood and waste paper.

**New Swedish Market Pulp Mill**

Karlshamn, Sweden . . . Fridafors Fabriks AB, subsidiary of the forest owner associations in southeastern Sweden, will build a new groundwood mill adjacent to its paper and board mill north of Karlshamn. The annual production of 44,000 dry tons of wet mechanical pulp will be for sale in the export market. Production is planned to start by the end of 1959.

**Finnish Machine Starts Up**

Helsinki, Finland . . . A new MG kraft paper machine, among the world's largest, was started up recently by

Lohja-Kotka O/Y at the Lohja paper mill. The new machine, made by Wartsila-Concern, Finland, has speeds up to about 1,400 fpm. Daily production is 77 to 132 tons, depending on paper grade.

**Spanish Mill to Expand**

Valencia, Spain . . . Industria Papelera Nes S.A. of Alfara de Algimia applied to the Spanish Ministry of Industry for approval to increase its annual output by 440 tons of gray packing paper and 33 tons of bleached packing paper. The firm's capital will be increased by 2.8 million pesetas (about \$67,000).

**Will Increase Hardboard Output**

Stockholm, Sweden . . . The Swedish Cellulose Co. plans to increase production of hardboard at its Johannedal mill from 13,200 short tons to 16,500 short tons (15,000 metric tons). Production of porous board will be raised from 10,000 short tons to 13,750 short tons. Expansion is scheduled for 1960 completion.

**Mergers in West Germany**

Mannheim . . . Zellstofffabrik Waldhof, big West German producers of paper and cellulose, has acquired the Fleischer paper plant in Eislingen. Fleischer produces tissue paper, hygienic papers and other special products.

Another big West German paper concern, Aschaffener Zellstoffwerke, recently acquired 98% of the Elberfelder Papierfabrik GmbH, in the Ruhrland.

**Pusey & Jones Ships Machine**

Manila . . . Pusey & Jones Corp., Wilmington, Del., U.S.A., has shipped a 325-ton paper machine to Compania de Celulosa de Filipinas in Manila. The new 30-metric ton-per-day capacity, left hand 92-in. machine will produce bond, book, writing and wrapping paper from bagasse.

**Australia Imports Trees**

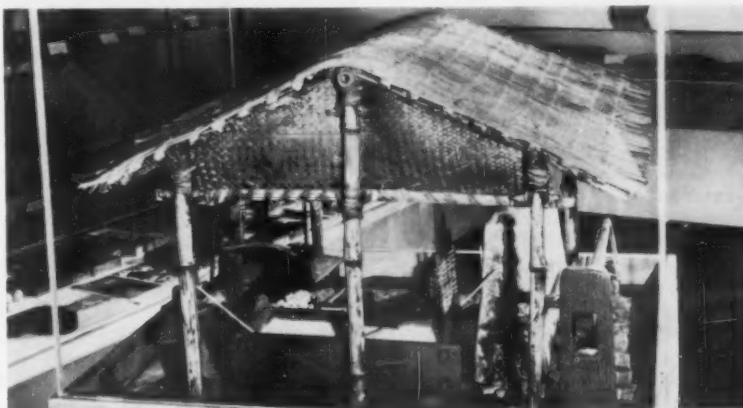
Melbourne, Australia . . . Australian paper manufacturers have made arrangements to import grafts from New Zealand *Pinus Radiata* trees, to be grown in Gippsland, Victoria, pine plantations, in an effort to improve Australian timber plantations.

**Nitric Acid Pulping Process**

J. X. Desfarges, who has been working on experimental work in connection with the nitric acid process of pulping in Vancouver, B.C., states that his company has been reorganized under the name of Desfarges Continuous Pulping Co., and that tests are being continued.

Although said to be somewhat similar to the Bouffe process, Mr. Desfarges maintains that his own is distinctive and that he has no direct relationship with the Bouffe interests.

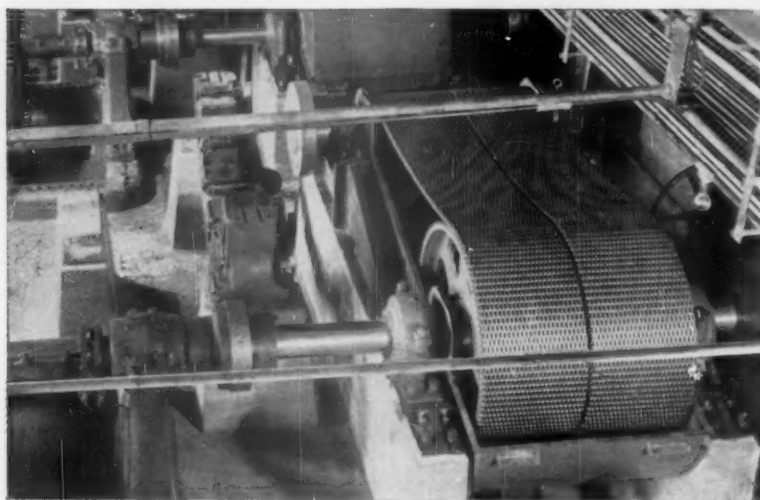
A British Columbia newsprint company which had been reported interested in nitric processes and which had even been said to have taken over Canadian rights to one of them issued a denial through PULP & PAPER. Small scale tests were made, but these were inconclusive, spokesmen for the company stated.

**How Paper is Made in Indo-China**

Model of a complete mill at Tonkin. Paper is for religious ceremonies—has been made over 600 years in this way in Indo-China. This model is in the Institute of Paper Chemistry.

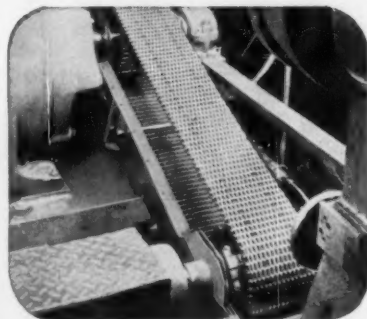
## How LINK-BELT silent chain comes through industry's stiffest tests

# No other drive can do the same

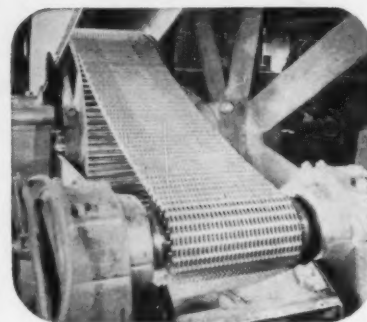


**LARGE OR SMALL HP.** Two 24-in. strands of Link-Belt silent chain on turbines powering 850-kw generators comprise one of

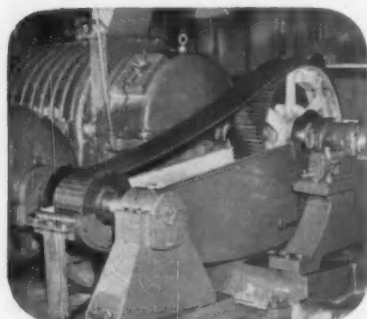
the largest chain drives ever built. Silent chain provides high efficiency (over 98%) on large or fractional hp drives.



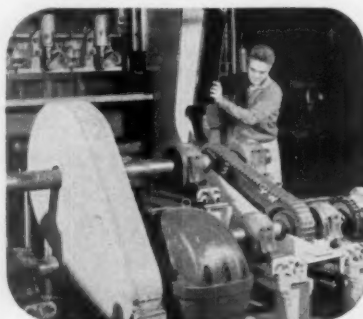
**HIGH SPEED.** Link-Belt silent chain drives on newspaper presses often operate at speeds of 4000 to 5000 feet per minute.



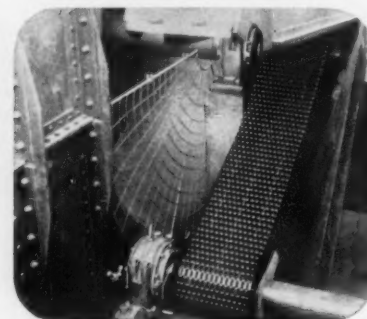
**ADVERSE OPERATING CONDITIONS.** Effects of heat, humidity and cold are minimized with Link-Belt silent chain drives.



**LARGE RATIOS.** Link-Belt silent chain operates efficiently at ratios as high as 10-to-1, with resulting space economies.



**LIMITED SPACE.** Easy to assemble in close quarters, Link-Belt silent chain permits built-in drives, compact housings.



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**Starch and CMC via Size Press**

ARNEBERG, ÖRNULF. *Das Papier* 12, no. 5/6: 81-6 (March, 1958). [In German; English and French summaries] *Bull. Inst. Paper Chem.* 28:1288.

Offset papers of 70-80 g./sq. m. basis weight and containing mechanical woodpulp were treated with various types and concentrations of starch and carboxymethylcellulose (CMC) in a 60-cm. wide size press. Size absorption proceeded nearly linearly with logarithm of viscosity. At equal viscosities, absorption was 20% higher for starch than for CMC. Judging from the increase of breaking length and pick resistance, approx. 3% starch produced the same result as did 1% CMC. At higher concentrations, the ratio was even more in favor of CMC. With starch as the binder, a pigment:binder ratio of 4:1 was sufficient to reduce breaking length and pick resistance of the paper to values below those of the unsized paper; with CMC as binder, both properties were still above those of the unsized paper at a pigment:binder ratio of 6:1. C.L.B.

**In Sweden, Pulp Fungus Control**

FREYSCHUSS, STIG K. L. *Norsk Skogind.* 12, no. 3: 104-13 (March, 1958). [In Swedish; English summary] *Bull. Inst. Paper Chem.* 28:1261.

Fungus damage to stored mechanical pulp and its control with organomercurials are discussed. Under normal storage conditions, a novel combined treatment with phenylmercuric acetate (PMA) and 8-quinolinol (oxine) gave good protection. Methylmercuric hydroxide (MMH) was also found to be an efficient fungicide and, in addition, to give rise to lower mercury-vapor concentrations in the groundwood-mill atmosphere than does PMA. C.L.B.

**Barkers Tested in Austria**

WULTSCH, F., and SALZER, H. *Graz, Akademische Druck- u. Verlagsanstalt*, 1957. 145 p. [In German] *Bull. Inst. Paper Chem.* 28:1070-1.

Investigations on Alpine woods which had not been waterlogged indicated that the time of felling of trees and duration of storage influence the efficiency of various barking methods. All wet barkers, particularly continuous installations which do not permit the treatment time to be controlled, are unsatisfactory for untreated non-floated wood felled in winter. The periodically operating Schongau barker

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and Paschke drum barker are most suitable and are unaffected by thickness of the wood. The Streambarker shows highest energy consumption, followed by the Schongau barker, whereas the Karlström jet barker and the Paschke drum require the least amount of energy. The efficiency, in cu. ft./hr., is highest for the Streambarker, followed by the Paschke, Thorne, and Kamyr barkers, whereas the Schongau machine has the lowest or second lowest efficiency, depending on the pretreatment of the wood. Wood losses are highest for the Streambarker and lowest for the Karlström, Paschke, and Schongau barkers. Diseased or surface-cracked wood cannot be used at all in the Streambarker and only with reservations in large continuous barkers; it is barked best in discontinuous machines with controlled treating time. Crooked and strongly branched wood cannot be barked satisfactorily in parallel barking machines, such as the Paschke drum, but is treated best in hydraulic devices, such as the Streambarker and Karlström barker. Thermal pretreatment of the wood with hot water or saturated steam improves the efficiency and reduces the power consumption of all barkers and minimizes wood losses. The effects of various storing, charging, and barking methods on the qualities of the wood pulp produced, the utilization of bark and bast fibers, and related topics are also discussed. C.L.B.

**Carbonization Studies in Japan**

KURIYAMA, AKIRA. VIII—On pyrolysis of cellulose and lignin in wood. *J. Japan Wood Research Soc.* 4, no. 1: 30-4 (Feb., 1958). [In Japanese; English summary] *Bull. Inst. Paper Chem.* 28:1293.

The pulp and sulfuric acid lignin of sugi (*Cryptomeria japonica* D. Don), konara (*Quercus serrata* Thumb.), and mōsōtiku (*Phyllostachys edulis*, a Japanese bamboo), as well as Tōyō filter paper and absorbent cotton, were carbonized at 180, 260, and 400°C. by destructive distillation in a Fischer-

Schrader aluminum vessel. After evaporation of moisture and air removal up to 200°, the cellulose starts to decompose slightly up to 260°, particularly in sugi and filter paper; the greatest decomposition with violent gas evolution occurs between 260 and 310°, and the degradation is nearly complete at 350°. After the drying stage, alpha-cellulose increases slightly, but beta-cellulose decreases, its cellulosan portion becoming partly dehydrated, condensed, and crystallized. The majority of pentosans decompose up to 260°, and 50% or more of the alpha-cellulose turns into beta-cellulose with accompanying cleavage of linkages and a decrease in D.P. of the cellulosan and hexosan portion. The pyrolysis of cellulose and pentosan is accompanied by some aromatization up to 500°, along with and followed by condensation of the aromatic nuclei with one another and, to some extent, also with the pyrolytic residues of the lignin. Above 500°, these condensations are accompanied by hydrogen evolution. Like cellulose, lignin dries nearly completely up to about 200° but, unlike cellulose, it decomposes only slightly up to 310°; the greatest degradation occurs between 310 and 400°, and thermal decomposition is finished at 500° C.L.B.

**Treats Board with Tall Wax**

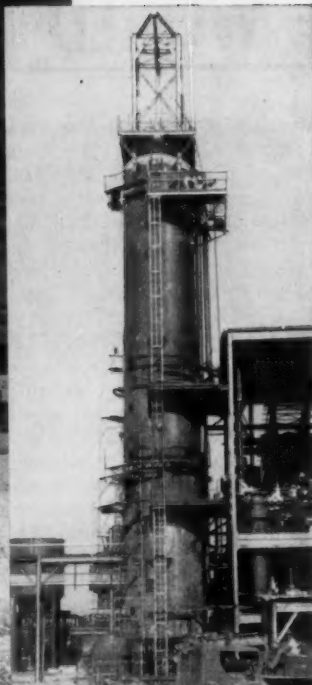
FICKLER, HANS-HEINRICH. *Svensk Papperstidn.* 61, no. 4: 99-102 (Feb. 28, 1958). [In German; Swedish summary] *Bull. Inst. Paper Chem.* 28:1278-9.

Pressed fiberboards bonded with phenolic resin and manufactured on a Fourdrinier machine with hot press were treated with tall wax by vat sizing or by impregnation. The furnishes comprised softwoods (50/50 spruce-pine blends), softwoods with 30% hardwood (mainly beech), and okoumé. Both sizing and impregnating treatments greatly improved the weather resistance and dimensional stability of the boards, reducing water absorption and thickness swelling by as much as 66% or more. The bending strength, although about 10% lower than for conventionally treated hardboards, remained within acceptable limits. Tall wax can compete costwise with existing sizing and impregnating agents. Except where strength is a critical factor, tall wax treatment can eliminate the need for subsequent heat treatment of the boards. C.L.B.





Aerial view of Gulf States Paper Corporation pulp mill.



Uniform high-quality production is provided by the Kamyr continuous digester (shown here under construction). Wood chips are continuously cooked under precise quality control and converted into finished pulp of maximum uniformity.

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*Largest Kamyr Continuous Digester Now Producing Pulp*

Designed, built and equipped by Ferguson, this new market pulp mill at Demopolis, Ala., using the new chlorine dioxide bleach, will produce strong, high white, bleached Kraft paper pulp at the rate of 275 tons daily. Key to this impressive production is the mill's Kamyr continuous digester, largest and one of the first in the U. S. The mill is the fourth

project for Gulf States Paper Corporation awarded to Ferguson since it was assigned the major expansion of the company's main plant at Tuscaloosa in 1946.

Ferguson's ability to convert growth *plans* into producing *plants* at lowest possible cost is the reason so many companies call upon Ferguson time and time again.



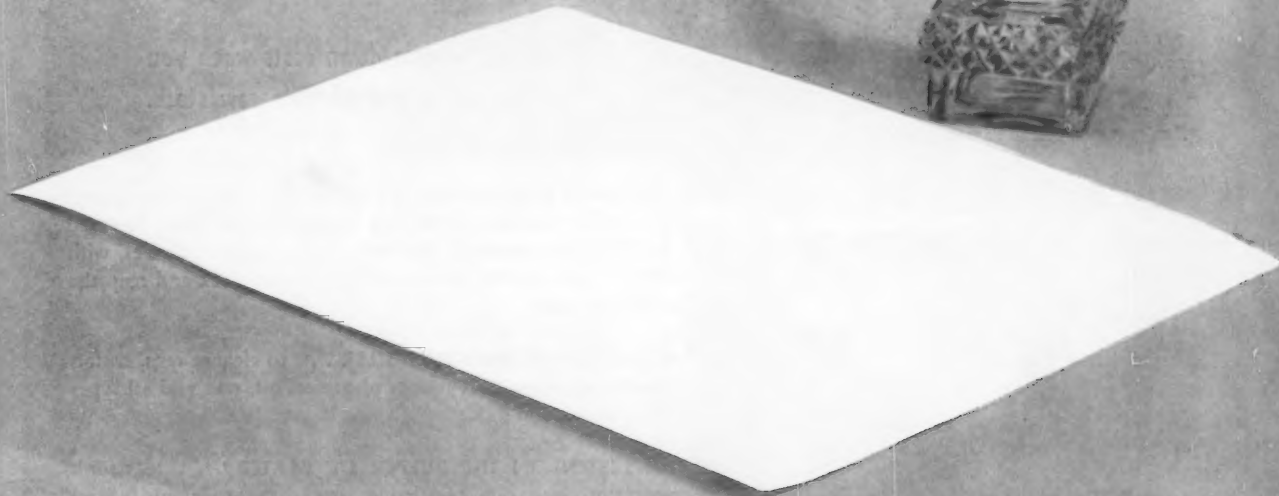
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Designed primarily as a paper machine save-all, this new Jones continuous rotary vacuum filter rates high in efficiency on a wide variety of white waters, including those containing large amounts of filler materials — without chemical additives.

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\*U.S. Patent Application Serial No. 524,410

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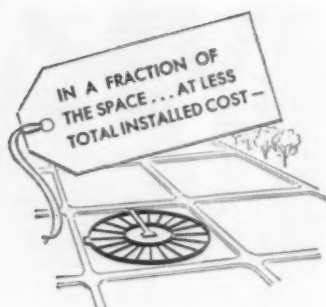
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high rate treatment plant  
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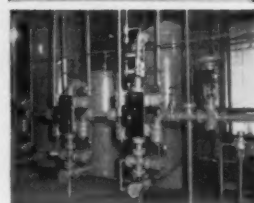
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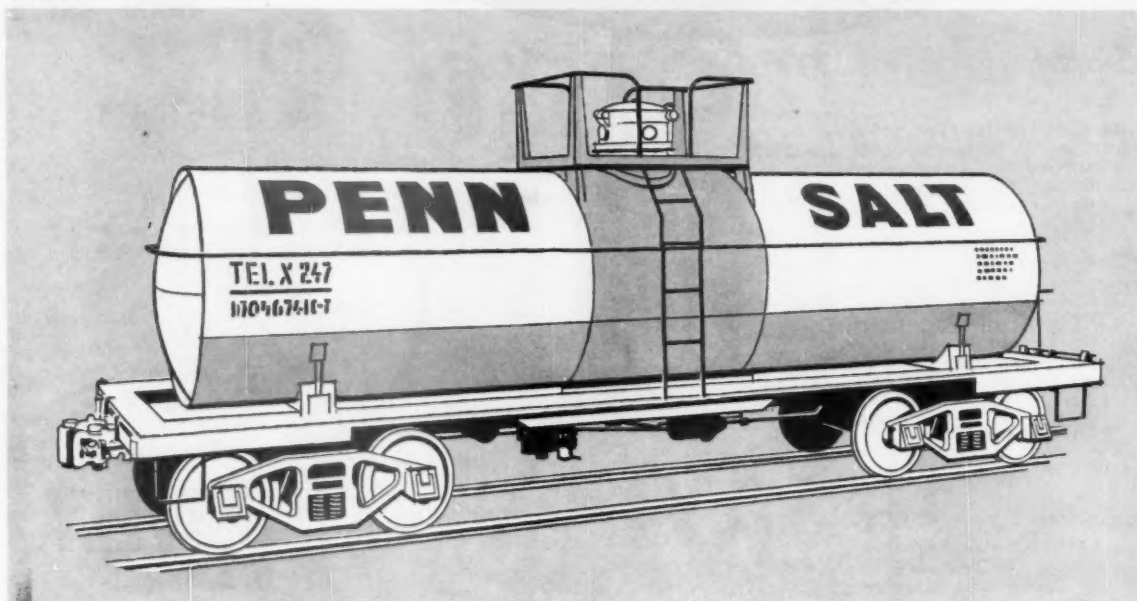
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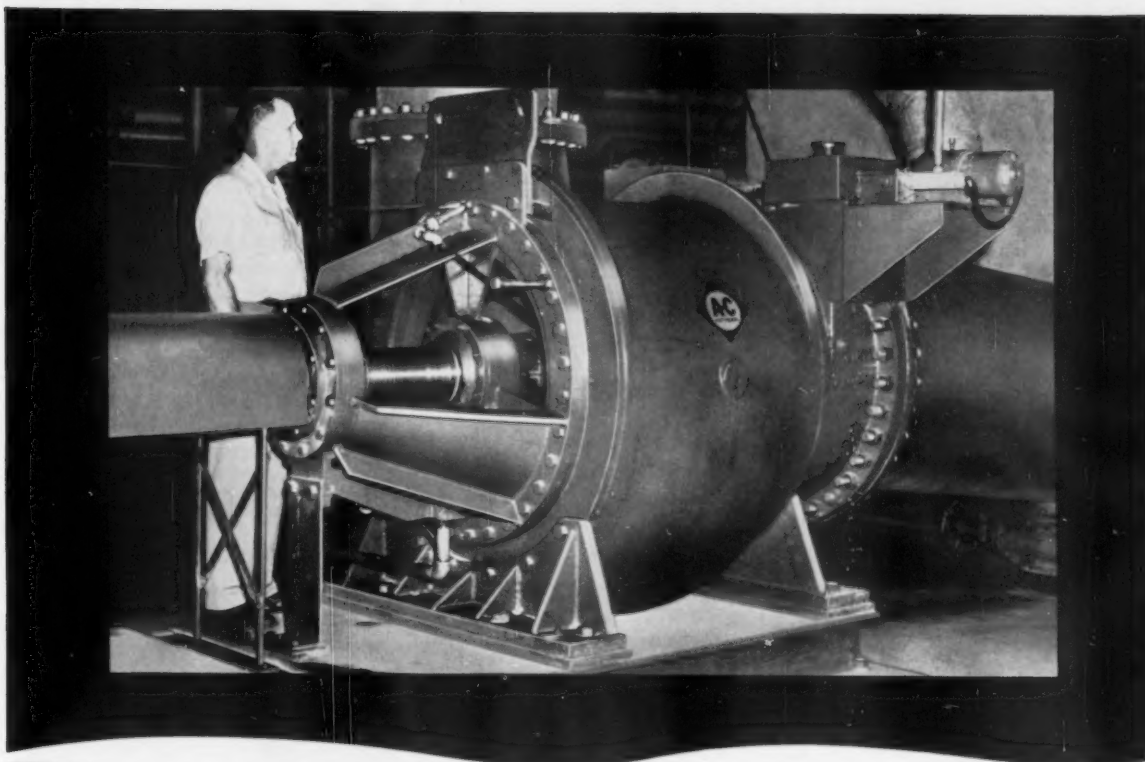
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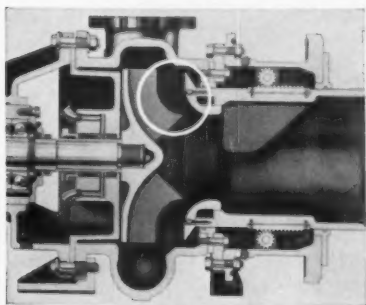






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ACAP is an Allis-Chalmers trademark.



A-5707

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Husky, heavy duty bearings permit every drive component to be designed with extra strength and rigidity. Excessive thrust or unbalanced

impeller loads simply can't cause shaft deflections which might damage the gearing.

Tough buyers look at the price too. And, you'll pay no premium for a Philadelphia Mixer. We are the only manufacturer that designs and builds the whole mixer. We control production and costs. We can *afford* to give you more mixer per dollar.

Write for Catalog A-27. It contains all the information needed for you to select your own Philadelphia Mixer. Philadelphia Gear Works, Erie Ave. and G Street, Philadelphia 34, Pa.

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# facts about foam

the cost of foam control can be far less  
than you think



This mill's cost per ton for foam control



New cost per ton with De-Airex



Savings per ton with De-Airex . . . while  
maintaining complete foam control

**Here's an outstanding example, taken directly from actual product performance reports at a large kraft mill.**

It started when management took a look at foam control on a cost-per-ton basis. Foam was no problem. It had been apparently licked for some time. But foam control was costing \$.63 per ton of finished pulp.

Management decided to find out if this was *really* a minimum cost. Houghton Personalized Paper Mill Service was called in.

The first step was a free appraisal of the process. Then Houghton De-Airex (a paste type in this case) was given a carefully observed mill trial. Again, the foam problem

was solved, but this time there was an eye-opening difference when costs were totaled up.

**De-Airex did the job for just \$.30 per ton! It required less of our defoamer to do an equally good job. And a full \$.33 per ton was added to mill profit.**

Even though foam may not be a problem in your mill, this example shows why it may be well worth your while to have a talk with the Houghton Man in your area or write for the latest De-Airex data sheet. E. F. Houghton & Co., 303 West Lehigh Ave., Philadelphia 33, Pa.

De-Airex a product of . . .

**E. F. HOUGHTON & CO.**  
PHILADELPHIA • CHICAGO • DETROIT • SAN FRANCISCO



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on-the-job service . . .**



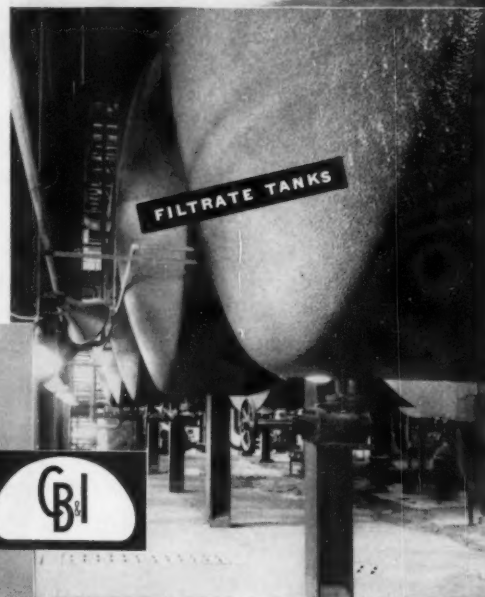
**CB&I coordinated services employed in expansion at Jacksonville, Florida**

CB&I welded steel structures, ranging from chip storage tanks to digesters, played an important role in the expansion of St. Regis Paper Company's Jacksonville, Florida pulp, paper and board mill.

New pulping techniques demand the exacting attention to structural detail that is made possible by the advanced metallurgical controls and techniques employed by CB&I in the engineering, fabrication and erection of storage and process structures.

X-ray, stress relieving and welding techniques developed in almost seven decades of *craftsmanship in steel* insure CB&I customers of long, dependable service life. Expert, *one source* continuity through all phases of construction is the reason so many satisfied customers include CB&I again and again—when they consider expansion. Write our nearest office for bulletin: *CB&I Pulp and Paper Structures*.

Above: Digester building at Jacksonville, Florida shows arrangement of some of the CB&I-built structures at expanded St. Regis pulp, paper and board mill. Accumulator was erected by CB&I and furnished through Foster Wheeler Corp.



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SERVICE**



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Newgulf, Texas  
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# IMPROVED CLEANING PATTERN

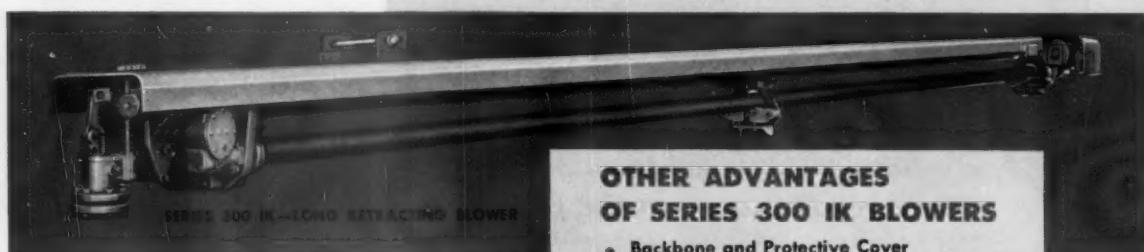
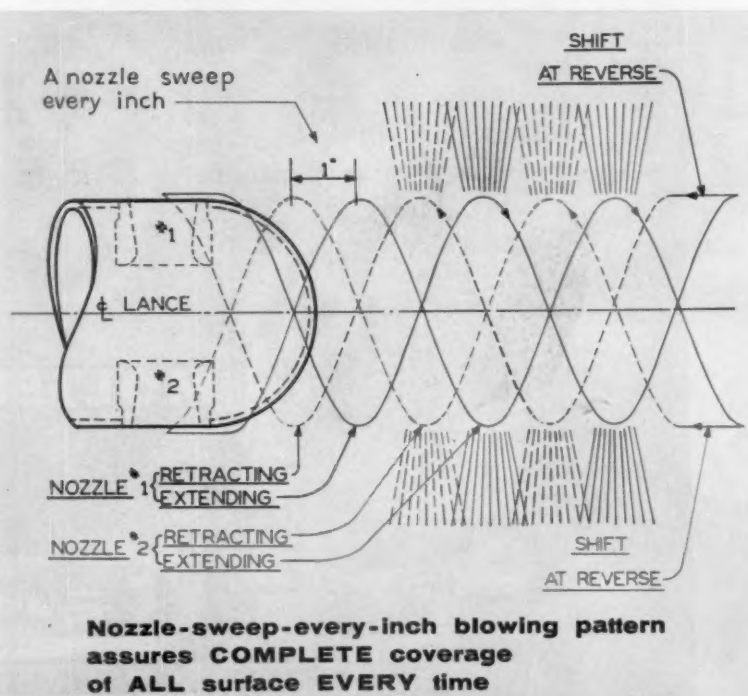
another important feature of the

*New* **Diamond**

Series 300 IK  
LONG RETRACTING BLOWER

The positively-controlled, close helical cleaning pattern assures optimum coverage of the heating surface. Return travel path is exactly intermediate to forward travel path . . . resulting in a positive nozzle sweep every inch.

This is another of many reasons why the Diamond Series 300 IK Blower does a better and more economical job of cleaning surfaces which require a long retracting blower. Other advantages are listed at the bottom of the page. Ask the nearest Diamond office or write directly to Lancaster for Bulletin 2111PP which will tell you much more about the new Series 300 IK.



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*Diamond Specialty Limited  
Windsor, Ontario*

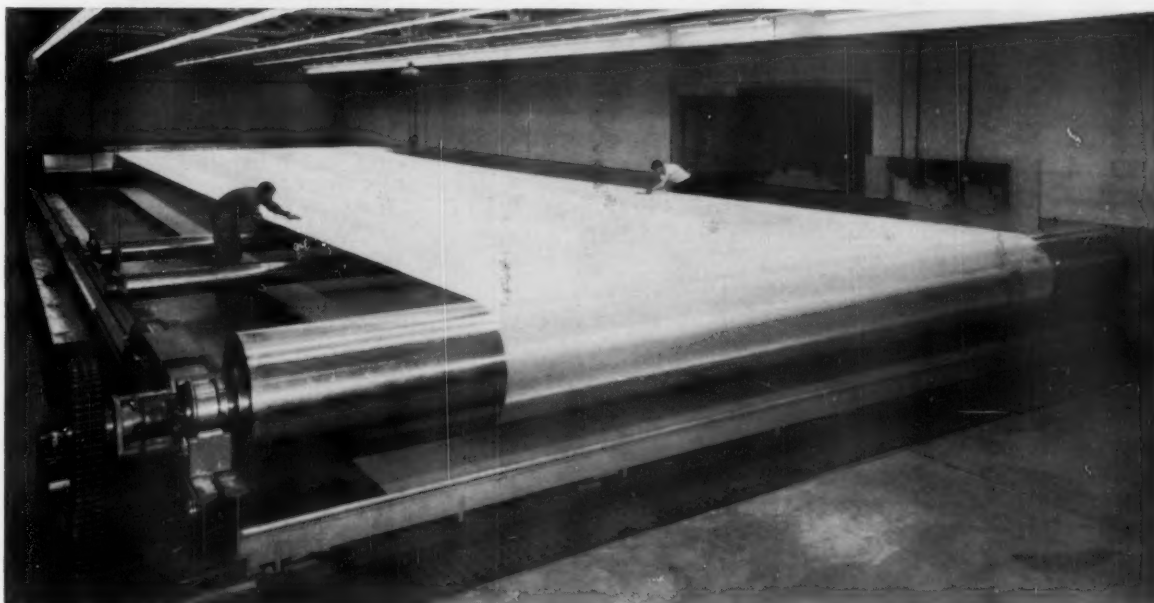
## OTHER ADVANTAGES OF SERIES 300 IK BLOWERS

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- Front End Single-Motor Drive
- Compact, Accessible Electric Power and Control Terminal Facilities
- Improved Blower Nozzle
- Positive Gear Carriage Drive
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- Positive Mechanically Operated Valve
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- Oversize Lance (Step-Tapered for Extra Long Travel)
- Auxiliary Carriages for Extra Long Travel
- Designed for Quick, Easy Servicing

**No other blower gives you all these advantages.**

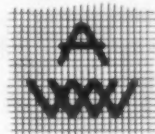
7885

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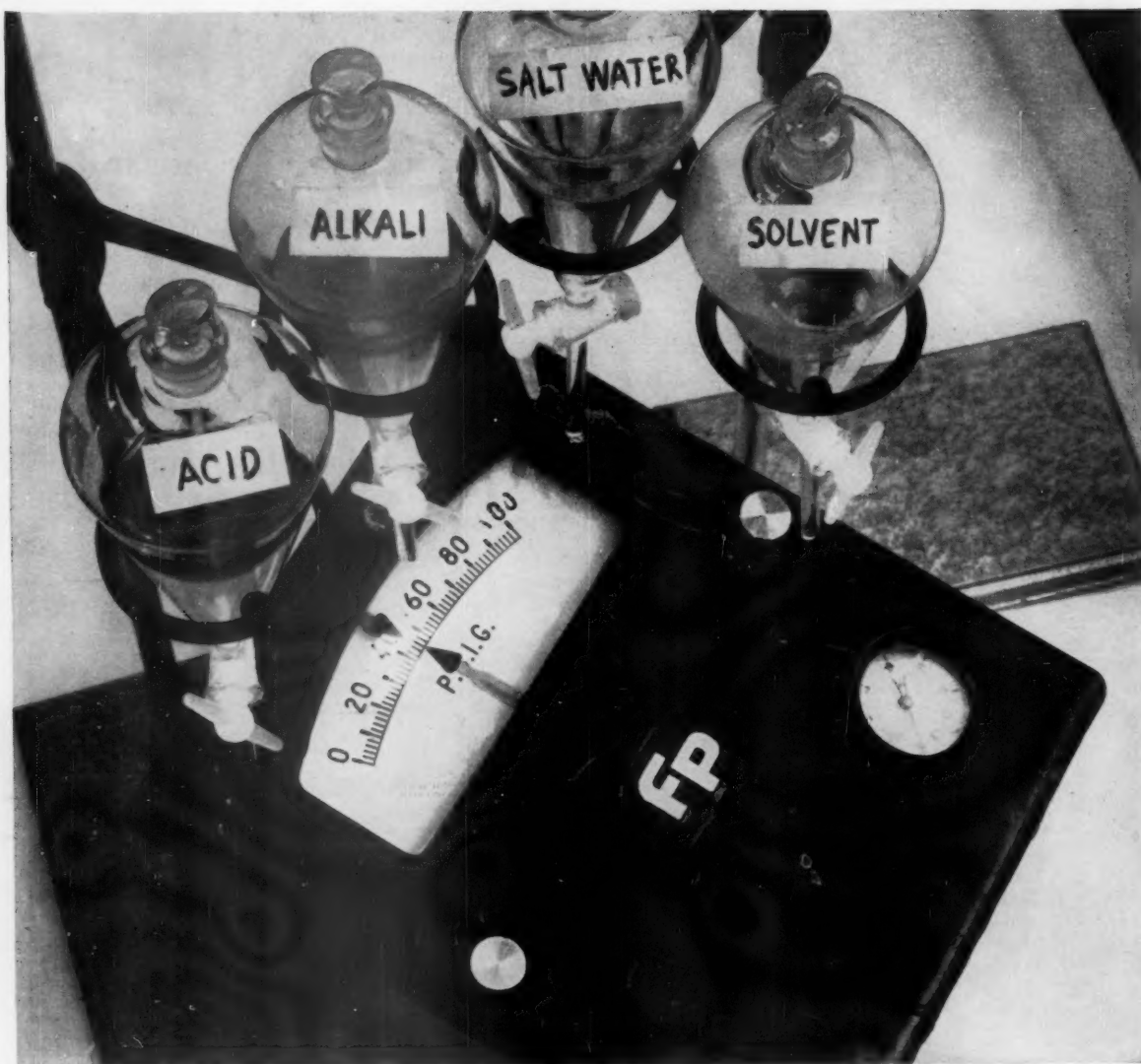


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**APPLETON WIRES ARE GOOD WIRES**







## New fiber glass instrument cases shrug off corrosion

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The new small and trim 1450 Series accom-

modates all modes of control—on-off, proportional, proportional plus derivative, proportional plus reset, proportional plus reset plus derivative, and others. Indicators, Transmitters, and Controllers for Temperature and Pressure are *now* available on a four week delivery schedule. Write for Catalog 51-1450. Fischer & Porter Company, 2178 County Line Road, Hatboro, Pennsylvania.



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device developed by

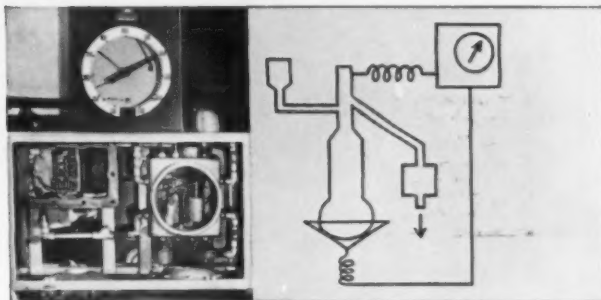
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Scientists at Standard Oil never stop in their drive to improve and then improve again the uniform quality of the petroleum products that bear the Standard Oil trade-mark. These engineering research scientists have now created wholly new instruments for performing near continuous physical analysis *automatically*.

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#### USSR is Potentially "Unknown" Factor in Future Fiber Economy of World

Black dots show where mills or groups of mills are located. Note principal clusters around Finland. In Far East, nine Japanese mills were ceded to Russia, including Japan's biggest. A staff panel, seated below this map in Institute of Paper Chemistry's auditorium, came to this conclusion about the future of the Soviet pulp and paper industry.

## Russia May Miss Paper Goal

Soviets are well advanced in chemistry. They are building modern mill processes, but lack engineering "know-how"

### Status of Russian Pulp and Paper Industry, as Seen by an Institute Panel

1. Lacks modern machinery and especially, instruments.
2. Not enough experienced engineers and crews.
3. Inhibiting factor may be lack of capital.
4. May find itself with excess pulp capacity.
5. Needs 50 years to attain per capita paper use of U.S.
6. Is well advanced in paper and pulping chemistry.
7. Succeeds with continuous pulping, oxidation, etc.
8. Has few technologists, as compared with other industries.
9. Location of timber presents transport problem.
10. Woods mechanization is increasing rapidly.
11. Faces acute labor shortages in remote areas.
12. Sulfur and chemicals are far from mills.
13. Heavy clear cutting on rivers has been serious.
14. Payment of stumpage prices may prove beneficial.
15. Achieving sustained yield on common-owned land is problem.

By **ALBERT W. WILSON**  
Editor, PULP & PAPER

● Soviet Russia is shooting for a 60% increase in production of pulp paper, and paperboard from 1956 to 1961. But a staff presentation at the Institute of Paper Chemistry's 22nd annual Executive Conference in Appleton, Wis., in mid-May concluded that Russia may be unable to reach this goal.

The Russians are hampered by inadequate resources of pulp and paper making equipment and apparently by a shortage of experienced engineers and crews.

"The Russian industry may find lack of capital its most inhibiting factor," said Dr. A. Neil McLeod, panel leader, Canadian-born Institute economist and graduate of Cornell and Harvard business school.

"In the near future," he said, "it is doubtful that the world's greatest fiber resource (in Russia) will contribute

greatly to the rest of the world's fiber need."

A vast expansion to serve domestic needs, however, could influence the U.S. industry. "Because the Soviet system tends to create an uneven balance across the industrial front, they could find themselves with excess pulp capacity. The Russian potential could recreate difficulties of foreign over-expansion the penalties of which are still painfully recalled by American industry," said Dr. McLeod.

#### Institute Gets Russian Journals

Six of the Institute staff culled much of their information from five Russian periodicals and eight journals from satellite countries. Dr. Julia Stapinski, who recently joined the Institute, has translated many articles from the Russian and much of her abstracting of technical work has appeared on PULP & PAPER's monthly "World Technical News" page.

Russia's production of paper and board in 1957 was 2,900,000 tons, of which paper comprised 2,300,000 tons, said Dr. McLeod. Russia acquired 51 pulp and paper mills in added territories as a result of World War II. Her expansion to 1960 is aimed to provide 4,300,000 tons, still inadequate to meet domestic needs, he said. He predicted it would take Russia 50 years to provide an equal standard of living to that of U.S., based on per capita consumption (from their 26 lbs. to 430 lbs.) in U.S.A.).

Each \$100 billion dollars of gross national product, he said, is serviced by only 1,800,000 tons of paper and board in Russia, as compared with 7,200,000 tons in the U.S.A.

#### Behind U.S. in Machinery

Dr. Edward F. Thode, speaking on engineering phases, said an affiliate of one of the U.S. machinery companies sold a semi-chemical mill and several paper machines to Poland. "It will be interesting to know if they stayed there," he added. The Soviets have

built a few high speed machines of good design, "but they do not seem to know how to achieve their five year plan goal by 1961," he said. Sweden and Finland are providing equipment.

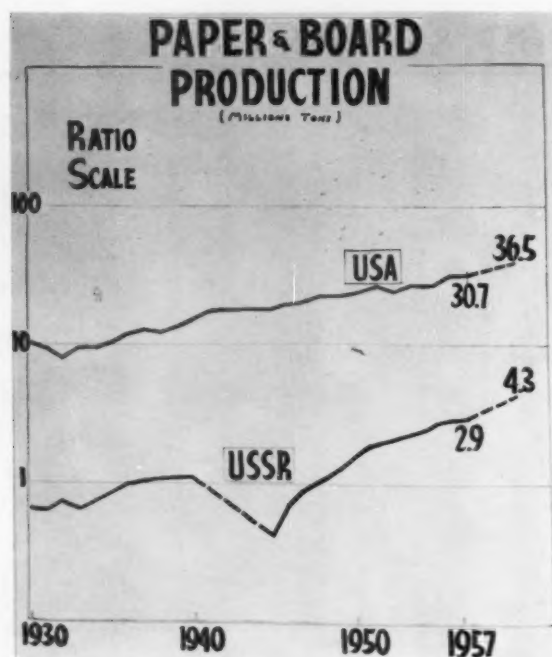
Instrumentation is a Soviet crash program. Some instruments are 30 years out of date, said Dr. Thode. "They are still trying to catch up with us in engineering. Some very modern processes are being built but they are generally behind us." Use of diffusers in stock washing he laid to lack of instruments and rotary washers. They are active, however, in vapor-phase cooking and continuous pulping.

#### Progressing in Chemistry

Dr. John W. Green found, however, that in paper and pulping chemistry the Russians have made considerable progress. At the Central Pulp and Paper Research Institute, emphasis has been on continuous pulping, bleach-

ing, high temperature pulping and use of reeds. Chemistry of cellulose and lignin, however, is done at other research institutes. A Mrs. Stakheeva-Kaverzneva has published several excellent articles on oxidation, he said. In Czechoslovakia, good work has been done on vanillin from sulfite waste. He quoted a German chemist as saying in the *Wise* (U.S.A.) and Hagglund (Swedish) authoritative texts there are only eight references to Russian work, showing how little it is known. In contrast, a Russian book lists 300 Russian names and 700 Western names in its index, of which 29 were of the Institute in Appleton. Russian work is stimulated by payments for inventions.

In physical sciences, Dr. Arthur L. Lathrop said quality of Russian research is good. University professional salaries are better than in industry, he said. The journal *Russian Paper*



#### From Viewpoint of Their Specialties, They Analyze Russia's Pulp and Paper Industry



Einspahr  
(genetics)

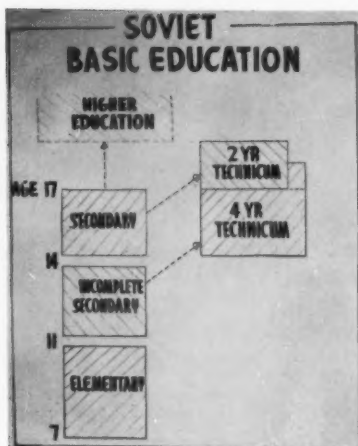
Jernegan  
(education)

McLeod  
(economics)

Green  
(chemistry)

Thode  
(chem. eng.)

Lathrop  
(physics)



Industry deplores lack of coordination between research institutes and industry.

However, Dr. Lathrop said there is no evidence in reports he saw that Russians are aware of the Kubelka-Munk theory, which describes light reflecting and transmitting properties of paper sheets and pigment films, and which has been used and found adequate for 25 years in the West.

#### "Eradicates Illiteracy"

Dr. George Jernegan discussed developments in education. Russia has "virtually eradicated illiteracy" and created many capable scientists. Many now believe their major advances were not stolen from Germany but are true products of the Soviet system. In 1955, there were 5,100 technicum (specialized schools) graduates trained in wood, pulp and paper technology—twice as many as in 1950. But these represent less than 2% of all subprofessional specialists graduated that year.

Doctor's degrees in Russia (only about 500 each year) represent 22 to 23 years of continuous education and are granted by the state. "Kandidat" degrees are earned in four years of study beyond the "undergraduate program and is based on advanced specialized study and an independent investigation and dissertation. A doctor's degree is for another four years of "mature independent research."

#### Owns Half of World's Softwoods

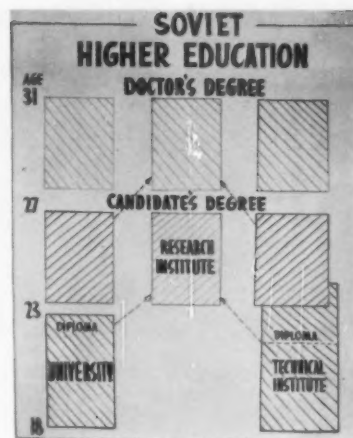
Dr. Dean Einspahr, from the Institute's genetics dept., said Russia controls one third of the world forest area, one fourth of forest volume, and one-half of the softwood, more than half termed "accessible." But three-quarters of her forests are decaying or insect-ridden. Losses from spruce budworm greatly exceed loss from fires. Much timber in the north is in swamps. Two-thirds of the timber is

in Siberia, but most population and industry are in Europe, posing a transportation problem. At present 70% is water driven, 20% moves by rail and 10% by truck. Too many rivers flow north to be much help. Mills are clustered heavily around Finland, several captured in the Finnish war.

Woods mechanization is said to have increased from 15% in 1947 to 80% in 1954. There are acute labor shortages in remote areas. Sulfur and chemicals are far from mills. Russia acquired Japan's largest pulp mill and eight other Japanese mills on Sakhalin Island. (PULP & PAPER records show Russia acquired six Finnish mills, including one of its largest).

Dr. McLeod pointed out that Russia imports pulp, pulpwood and paper from Finland and Sweden. He said the Soviet press has complained of lack of pulpwood. Mills at Kaliningrad lost 20,000 digester hours in 1955 as a result. Vast areas along rivers were clear-cut in the 1930's. The Ministry of Forestry is conservation-minded. The Ministry of Timber, on the other hand, is out to achieve production goals.

Dr. McLeod said public ownership of timber in Russia "is in stark contrast" to highly productive status of



U.S. forests, as reported by U.S. Forest Service.

He noted a trend to capitalistic ideas—Krushchev's action in changing ownership of tractors from the state to collective farms. The return to use of stumpage prices. "But the problems of getting sustained yield on land owned in common, with a resource as susceptible to abuse as forests, could well be the Achilles heel of the Russian paper industry," he said.



Dr. John G. Strange

Dr. Harrison Brown

MORE GRADUATES WILL BE WELCOME IN FEW YEARS, foresees Dr. Strange. Dr. Brown looked even farther ahead . . . 100 years . . .

## For Predicted Industry Upsurge in '60s, Need \$180,000 More in Scholarships

● Predictions of another pulp, paper and paperboard industry upsurge in the 1960's were cited by President John G. Strange of the Institute of Paper Chemistry as reason for believing an increasing number of graduates from the Institute will be welcomed. At the 1957 annual conference, Gen.

Lucius D. Clay, chairman of Continental Can Co., predicted "the next boom will be in 1959 and 1960."

"Our graduating classes will be larger three or four years hence," said Dr. Strange (his doctorate was an award of this past year), in his third annual report before the Institute's





### New Look at Institute of Paper Chemistry

The Institute's Quadrangle (main building at extreme left) is now closed by the court addition at its lower right hand corner. Also at extreme left are shown two new buildings—Central Research Bldg. (Container, Graphic Arts and Paper Evaluation divisions) and South Research Bldg. (new home of Sulphite Pulp Mfrs. Research League). Much new equipment is installed in both of these. Dwellings for students and families are at right.

Executives. It was four years ago that he succeeded Westbrook Steele, now retired in Florida, at the helm of the U.S. industry's own graduate school and research center. Irving Osborne, Jr., chairman of Institute trustees and of Cornell Paperboard Products Co., presided.

"Our most important financial need in the period ahead is for scholarship funds," said Dr. Strange. "Before this academic year is completed we shall have granted more than \$130,000 in scholarships to our regular student body. Two or three years hence we will probably need \$180,000 for this purpose."

These would be for living costs, as tuition is already covered by an endowment and surcharge paid by many companies.

#### Alumni Organize

The Institute's more than 240 graduates have formed an alumni association. Dr. Harold Bialkowski, Weyerhaeuser's Pulp Division research director, and one of the Institute's first two graduates (the other is Dr. Roy L. Davis, exec. v.p. of the Scott Paper-Cusi San Cristobal mill in Mexico City), was mentioned by Dr. Strange as the alumni's first official representative on the Institute's Board of Trustees.

"As years go by and alumni assume positions of responsibility and leadership, I am sure we will point to them and say: 'This is our most enduring, most important achievement.'"

Other highlights of his annual report:

#### Two More Companies Join

Two more companies have joined the Institute. Gross membership dues have increased from \$670,000 to over \$720,000 a year.

(The new members, PULP &

PAPER learned, are Union Mills Paper Mfg. Co., New Hope, Pa., Ferdinand R. White president, and Federal Paper Board Co., Bogota, N.J., J. R. Kennedy president. Some 128 member companies make about 85% of all U.S. pulp, paper and paperboard.)

The past academic year began with 65 regular students, largest enrollment in Institute history. They came from 44 colleges and universities in 22 states, Canada and Burma. Nine achieved doctorates and 23 were working on theses. There will be about 22 new students next September.

The Institute produces more ph.d.'s in chemistry and chem. engineering than many state universities—it ranks 51st among 104 universities.

#### Comparison with Russia

"We have everything Russia has in science and education—plus a great deal more—that great deal more being the result of a long tradition of individualism and creativity.

"But U.S. primary and secondary schools spend 'more time on desserts' than 'meat and potatoes.' So colleges have to start farther down the ladder than they would like. We are deferring the intellectual maturing or growing-up of our young people and some of them may never quite make it."

In 1957-58 year, the Institute completed 66 research projects, started 40 new ones and have 105 under way. There are 263 staff members, most of them on research, some teaching).

In that year, the Institute received and conferred with nearly 5,000 visitors.

#### "In the Black . . ."

At the end of ten months of the 1957-58 fiscal year, it is 'in the black.' Annual expenses for current purposes, \$1,865,000 about 7% above last year.

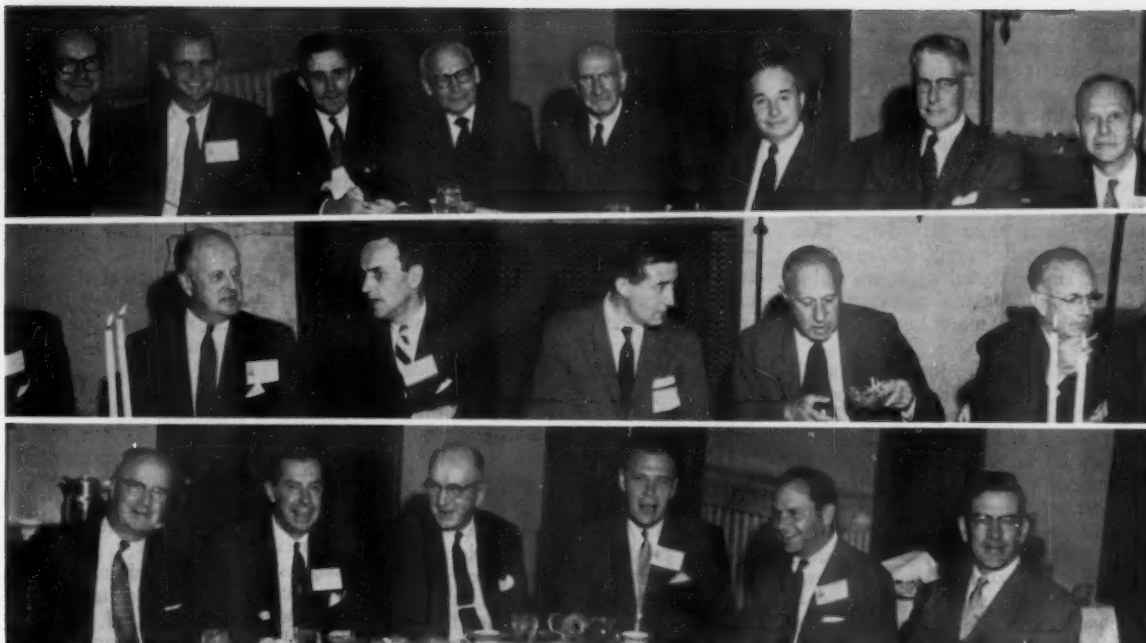
New facilities of the past year cost

\$15.85 per sq. ft. "We worked hard to save costs." Executives toured the extensive court addition (labs, testing rooms, offices and studies, with 400 ft. long corridor), a new South Research Bldg. for the Sulphite Pulp Mfrs. Research League and a new Central Research Bldg., housing Container, Graphic Arts and Paper Evaluation divisions. The court addition completes the Institute's Quad.

Dr. Strange paid high tribute to Institute Vice President Harry F. Lewis, who was 67 on May 27. "Our dean emeritus has done more than any other person toward stimulation of research in the science departments of colleges throughout the country."

Accepting a suggestion to "brag in a nice way" about Institute achievements, Dr. Strange listed:

1. A whole series of additives, sizing and bonding agents including wax emulsions, prosize, silicones, corn and wheat starches, soya bean protein, guar and locust bean gum, and various elastomeric bonding agents such as synthetic and natural latices for specialty papers.
2. Use of glass and other synthetic fibers for blending with wood pulps.
3. Extension of bleaching processes with most of the original work on peroxide bleaching and some of the early work on chlorine dioxide bleaching.
4. Extension of wood pulps for chemical uses.
5. Hydrosulfite stripping of rags.
6. Various advancements and refinements in all areas of pulping with emphasis on neutral sulfite pulping and development of commercial recovery systems.
7. Development of new formulations for machine and off-machine coatings.
8. Commercial process for de-asphalting.



#### Institute's Board of Trustees, with a guest . . .

Top, l to r: H. E. WHITAKER, chairman, Mead Corp.; ALEXANDER CALDER JR., pres., Union Bag-Camp; HAROLD W. BIALKOWSKY, research director, Weyerhaeuser Pulp Div. (alumni trustee); HARRY F. LEWIS, Institute vice pres.; KARL E. STANSBURY, chairman, Thilmany P & P; GEORGE E. DYKE, vice chairman, Continental Can; DONALD S. LESLIE, president, Hammermill; JOHN L. RIEGEL, president, Riegel Paper; Middle, l to r: IRVING OSBORNE JR., president, Cordell Paperboard (chairman of trustees); JOHN G. STRANGE, Institute president; HARRISON BROWN, guest speaker; ERNST MAHLER, former exec. v.p., Kimberly-Clark (honorary chairman of trustees); DAVID L. LUKE, president, West Virginia P and P; Below, l to r: DAN K. BROWN, former president, Nee-nah Paper; GEORGE OLMSTED JR., president, S. D. Warren Co.; M. C. McDONALD, president, Great Northern Paper; WM. R. ADAMS, president, St. Regis; P. H. GLATFELTER III, president, P. H. Glatfelter Co.; HOWARD W. MORGAN, vice pres., Weyerhaeuser Timber Co.

9. Wood waste utilization, including formulation of certain phenolic resins which are now marketed commercially.

10. Deflocculating agents for improving formation and increasing machine speeds.

11. Resistant films and sealing agents for sanitary food boards.

12. Early work on air formation of paper.

13. Use of acid sensitive pigments.

14. Application of new slime control agents.

15. Various lignin and waste liquor derivatives.

16. Specially treated boxes for packaging citrus fruits, vegetables and meats.

17. An enormous amount of work on instrumentation for the measurement and control of both products and processes.

#### 80% of Legislation Involves Science, But Congressmen Know Little About It

"Problems Facing Man in Next 100 Years" was theme of an address by Dr. Harrison Brown, professor of geological chemistry, California Institute of Technology, featured speaker

at the Executives dinner. He had made 102 speeches in a countrywide tour. He is author of "Must Destruction Be Our Destiny," and serves on the emergency committee of atomic scientists.

"Eighty percent of our legislation involves science," he said at one point, and by way of comment, added: "But I would hate to give a freshman physics or chemistry test to our congressmen."

He expressed fear that the United States will not turn out enough well-educated people in future years—"it is

not enough to have scientists and engineers; we must have people with an awareness of what science is."

He dwelt on diminishing coal, iron and oil resources—"in ten years we will approach exhaustion of oil resources and will get fuel in other ways." Nations without secondary resources such as the United States has, will be driven to atomic power. England and Japan may be on atomic power completely by 1985, he said.

"Man can create a world of abundance, but not by letting nature take its course," said Dr. Brown.

## New Knowledge Brings New "Tools" . . .

### Staff and Students Make Reports

● Nine of the Institute staff, headed by Dean Roy P. Whitney, presented excerpts from research programs to show the origin and application of research ideas.

Dr. Whitney said research ideas come from executives wanting a new or better product, from scientists who wonder why systems behave as they do, and others.

"We need a proper blend of 'I wonder' and 'I wish' research," he said. "It will help us to gain confidence in long range research by doing mill problems. We will do more long term research."

#### Why Paper Has Strength

Edgar E. Dickey, organic chemistry group, said work is going on to

determine if more mannans of wood should be retained in pulp. Useful knowledge is gained from studies of mannose and glucose in wood.

Dr. William L. Ingmanson, group leader of chemical engineering, noted that much research in filtration has been empirical. Now it is expected that actual machine wire drainage can be predicted from lab data. This knowledge can be applied to machine design. He predicted optimum pulp, refining and machine operation will be achieved by more knowledge of fluid mechanics.

Dr. Edward J. Jones, physical chemistry group, hailed new knowledge of surface properties of fibers. "One pound of fiber may have a surface of 20 acres." More knowledge will enable mills to control strength of paper and board. "Reveal the surface and improve all," he said.

Dr. Malcolm N. May, group leader of pulping and papermaking, said new diagnostic tools, supplementing conventional pulp evaluation tools, are "making break-throughs in industrial problems." They are providing "a valuable insight to improve operations."

Dr. George R. Sears, group leader in graphic arts, discussed optical properties of paper. Studies at the Institute have provided methods for measuring relative bonded area of a sheet. "This know-how is important to pulp evaluation," he said, "because in one sense papermaking is the selection and treatment of pulp fibers to form a web of paper having the bonded area (degree of bonding) required by the use of the paper."

#### Better Knowledge of Paper Strength

Dr. Johannes A. Van den Akker, group leader of the physics section, discussed new knowledge of fiber strength. A long-held belief that few fibers fail or rupture in paper failure has been debunked. Tagging fibers with dyes led to discovery that during tearing and tensile rupture of paper, a substantial percentage of fibers in the zone of failure—like 40% and 60%

—actually fail. Thus, he said, individual fiber strength is now recognized as an important property of pulp, as is fiber length, width, thickness, stiffness, etc.

#### Guar Gum is Useful

John W. Swanson, group leader of physical chemistry, told of new developments in adhesives to counter deteriorating effects of beating. Institute works developed use of guar gum to give improved strength, especially with unbleached kraft pulp. About 25,000,000 lbs. of guar gum was used last year as beater or wet-end adhesives. Corn provides 90% of all starches used in this industry. Studies continue to improve its uses.

Dr. Kyle Ward, cellulose group leader, said in just the past two years cellulose has been chemically modified so its affinity for water was increased without producing water solubility. Resulting products have greatly increased burst, tensile and folding strength, much more rapidly and with less beating.

#### Student Experiences

As in past years, students had their hour on the program. This year they told experiences in graduate study for the edification of the executives (including future bosses).

Ronald B. Estridge, High Point, N.C., graduate of North Carolina State College; Dwight B. Easty, Evon Lake, O., Ohio Wesleyan grad, and Theodore D. McDonald Jr., Longview, Wash., Yale alumnus, showed many ways in which fundamental sciences of biology, organic and physical chemistry, physics and chemical engineering touch upon industry practices and processes all the way from growing trees to final products. These sciences must be understood in order to understand the complex industry, they agreed.

#### Freeness Test Becoming Obsolete

The freeness test is going to give way to a more scientific test, one predicted. How to prevent 10% loss of

wood by decay before it is pulped is a problem which must be solved, said the Southerner. He predicted trees grown for "each specific end use." Odor in foodboard was another problem cited.

Wavell F. Cowan, of the Montreal family famed for invention of a pulp screen, and a McGill graduate; Charles W. Carroll, Yale graduate from Toledo, O.; David J. Kraske, Rumford, Me., a Western Michigan U. product, and Thomas P. Czepiel, Deep River, Conn., a Wesleyan grad, discussed their theses work.

#### Eleven Earn Ph.D.'s; Ten More Coming Up

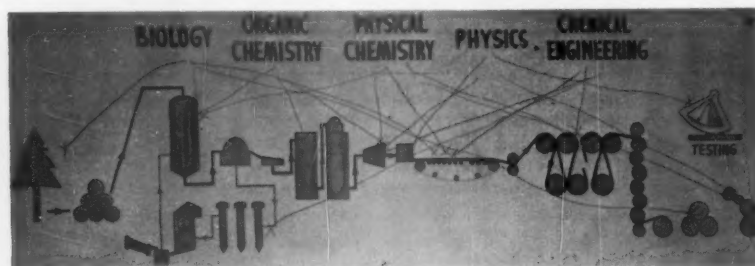
Eleven young men were earning doctor of philosophy degrees this year at The Institute of Paper Chemistry. Their names, home towns and previous colleges or universities:

Charles W. Carroll, Toledo, O., Yale; Iowa State; Richard H. Cordingly, Colorado Springs, Colo., U. of Colorado; Thomas P. Czepiel, Old Saybrook, Conn., Wesleyan; Arnold C. Eames, Portland, Me., Rensselaer Polytechnic Institute, Hiram College; William Holtzman, Wilkes-Barre, Pa., Wilkes College, Penn State; Otto J. Kallmes, Boston, Northeastern U.; David J. Kraske, Rumford, Me., Western Michigan U.; James E. Macklem, Beloit, Wis., Beloit College; Dan W. Manson, Detroit, U. of Vermont; Robert S. Morgan, Binghamton, N. Y., Rensselaer Polytech; Vincent A. Russo, White Plains, N.Y., Rensselaer Polytech.

Ten of the eleven are married, and nine of the ten have from one to three children. Mr. Morgan has three, Mr. Russo two, and seven have one each. Mr. Macklem is the lone bachelor. All have worked three summers or more with at least three different pulp and paper companies from Coast to Coast or abroad. Mr. Kallmes spent one summer at the Waldhof mills in Mannheim, West Germany, on machine studies, and Mr. Russo with Vita Mayer, Italy, as project engineer for its Kamyr continuous kraft pulping system.

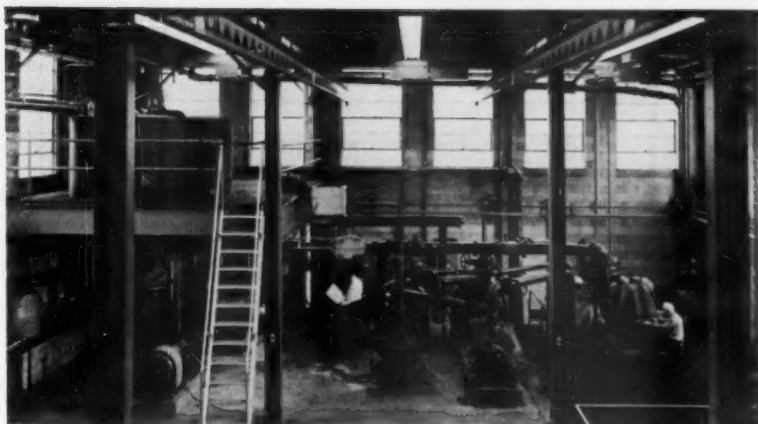
Mr. Mason goes to Sweden and Mr. Kallmes to England for further studies.

Admitted to doctoral candidacies, to be earned in 1959, are these ten (with home town and previous colleges): James P. Bambacht, Kalamazoo, Mich., Kalamazoo College; Louis R. Busche, Northwestern U., Milwaukee; Richard H. Cornell, Northport, N.Y., Colgate; Wavell F. Cowan, Montreal, McGill U.; Richard W. Detrick, Hamilton, O., Case Institute; Horace B. Faber, Jr., York, Pa., Yale; James A. Harrocks, Maplewood, N. J., Bowdoin; John H. Schulz, New York City, Brooklyn Polytech; William A. Wiberg, Neenah, Wis., U. of Wisconsin, and Harry D. Wilder, Westfield, Wis., U. of Wisconsin.



**Lines show many points in pulp and paper making** where fundamental sciences have applications. These lines were drawn in by Institute students as they emphasized sciences must be understood to better understand industry.





**PURPOSE OF RESEARCH IS PROGRESS.** This is one reason for the commercial pulping and stock preparation equipment shown here. It's part of a . . .

## New Pulp-Paper Research Lab

**Bolton-Emerson steps up research into improved methods of fiber treatment and stock preparation system.**

● "Research," said Brown Co.'s A. E. Harold Fair, dedicating the new John W. Bolton Pulp and Paper Research Centre on May 9, 1958, "is a life insurance policy for business. Business needs research if there is to be progress."

"Research has brought automation, speed of travel, power to build and power to destroy. It has brought space satellites and will bring space travel."

To Bolton-Emerson the new laboratory will be a life insurance policy for the company's future. Its purposes and objectives are:

1. To improve methods in fiber treatment and stock preparation systems.
2. To design, evaluate and produce machines and equipment for pulping and refining operations.
3. To provide laboratory and pilot plant evaluation of existing or contemplated stock preparation systems and methods.
4. To formulate and apply stock systems controls and instrumentation.
5. To render field technical services in applications of pulping and fiber treating equipment.
6. To engage in independent contract research and development projects.
7. To invite technical members of the industry to participate in symposiums on aspects of fiber treatment.
8. To issue technical papers resulting from symposiums and other activities.

Attending opening day dedication ceremonies were leading executives

from the nation's pulp, paper and paperboard mills.

Bolton's Technical Director George E. Soyka explained: "Our basic problem in papermaking is to get maximum yield from existing timber supplies. And from this stem other problems in defibering or pulp treatment: how to process pulp to produce paper and board of better quality faster and more economically, how to utilize short-fibered hardwoods and vegetable fibers such as bagasse or cotton, etc. From these problems come still others. For example, development of machinery to make laboratory solutions feasible."

The Research Centre is equipped for both basic research and to duplicate on laboratory, pilot plant and commercial scale actual specifics on the problems presented.

A lab size pilot plant performs small-scale production runs. Its equipment is similar to production machinery in everything but size. A larger pilot unit can perform commercial production runs. Its equipment is of the size range used in actual paper mills.

### Allan Hyer Joins P-J

Just at press time, it was announced that Allan Hyer, veteran of 40 years as a leader in the paper machinery industry, has joined The Pusey & Jones Corp. as vice president. In two wars, Mr. Hyer held top allocations and advisory posts for this industry in Washington, D.C. His career in the machinery field has been with Black-Clawson and Bagley & Sewall.



Dr. Hirschkind . . . gave Western Hemlock a boost.

### Developer of Pulp Upgrade Process Wins Award

Dr. Wilhelm Hirschkind, technical advisor to the president of The Dow Chemical Co., was recently honored as co-recipient of the Pacific Chemical Exposition Award. The award is for contributions to the Western chemical industry and includes important work he did to help develop the Pacific Northwest chemical pulp and paper industry.

Dr. Hirschkind's accomplishments in research started in 1909 (when, as a member of a small, elite research group at the Institute of Technology Fredericiana at Karlsruhe, Germany, he saw the realization of the ammonia synthesis. One of Dr. Hirschkind's most outstanding contributions is in the field of chlorination of hydrocarbons.

He worked closely with the pulp and paper industry of the Northwest from the time Great Western Electro-Chemical Co. at first furnished bleaching powder and later liquid chlorine to that rapidly growing industry. In 1928 he introduced a process to brighten groundwood made from Western hemlock so that it could compete with that made from Eastern spruce. This process, using hydrosulfites, especially zinc hydrosulfite, is still in use at most newsprint mills and some specialty mills of the Pacific Northwest.

Dr. Hirschkind has been in chemical work on the West Coast since 1916. In 1939—when he had been vice president in charge of research and development for Great Western for nine years—Great Western merged with Dow, and Dr. Hirschkind became director of research for Dow's Western Division. In 1951 he was appointed to his present post. His headquarters are at Dow's research facilities at Pittsburg, Calif.

**EVERY FAMILY OF FIVE** in the United States uses an average of one ton of paper per year.

## Where New APPMSA Prexy Works When He Isn't Working For APPMSA

... it is at one of those so-called "chestnut" mills but that isn't right name anymore ... they are still semi-chem pioneers

● The 40th annual convention of the American Paper & Pulp Mill Supts. Assn., to be held in the Shamrock-Hilton hotel, with "the world's largest outdoor hotel swimming pool," in Houston, Tex., May 18-21, 1959, will be presided over by Howard E. Wehr, division manager of Mead's Harriman, Tenn., mill for the past seven years.

That was decided at the 39th APPMSA conclave in Boston in early June where Mr. Wehr was elected president of the association, succeeding Albert E. Bachmann, of Standard Packaging and Missisquoi Corp.

At the same time, Adolph Charles ("Ace") McCorry, who just recently became manufacturing representative for the St. Regis Kraft Pulp Division at the Tacoma, Wash., mill, moving there from Hinton, Alberta, where he had been supt., was elected first vice president of the APPMSA. This means he advances to the presidency at Houston and is slated to preside at the 1960 meeting—June 6-9 in the St. Francis hotel, San Francisco.

### Meet the New President:

Mr. Wehr soon has a birthday—he was born Aug. 16 at Hamilton, O. He graduated from U. of Cincinnati, 1927, chem. eng. He worked at Champion in Hamilton in the years from 1922 to 1928, then joined Mead as pulp mill supt. at Sylva, N.C., in 1928.

For thirty years he has been identified with the so-called Mead "chestnut" mills nestled in and around the Appalachians, pioneers of semi-chemical pulping.

Mr. Wehr left Sylva to spend 22

years at Lynchburg, Va., serving as pulp supt., asst. gen. supt., asst. to the v.p. for the board mills of the area, and asst. to the mgr. In 1951 he made his last move—to Harriman, a two hour drive south of Knoxville (one good route is via Oak Ridge of atomic fame). Built in 1929, the Harriman mill survived an Emory River flood that all but washed it out.

PULP & PAPER editors have made several visits to the Wehr-managed mill. Formerly on 100% chestnut, it now uses mostly gum and other species. Sodium sulfite is the conventional primary semi-chem pulping agency. Six Biggs rotary digesters cook charges for 5 to 6 hrs. Six Bauer mills with water-cooled bases precede a 48-in. Black-Clawson machine, with a mill-made baffled headbox. In recent years, an addition here was a 150 in. Manchester Machine reel, with belt drive off the calendar shaft. The machine has an 80 ft. wire, and relatively new is a Beloit dual press.

To paraphrase Mark Twain, there have been perennial predictions of the demise of these old chestnut mills, but they all seem to have been exaggerations—except, it may be, for Nashville. Sylva, Lynchburg, Knoxville and Harriman are still carrying on.

First Vice Pres. McCorry was born in Green Bay, Wis., Jan. 10, 1907. As a boy he went to Ontonagon, Mich., schools and began working in the old kraft mill there at the age of 19. Two years later he went West, spent eight years at Longview Fibre Co., then joined St. Regis at Tacoma in 1936 as tour foreman. He moved up to pulp



President Wehr . . . 1st V.P. McCorry

supt. by 1944. From Tacoma he went to Hinton, Alberta, to start up and head mill operations. Now he is back in Tacoma.

Next in line as vice presidents of the Supts. Assn., and years they are to become president:

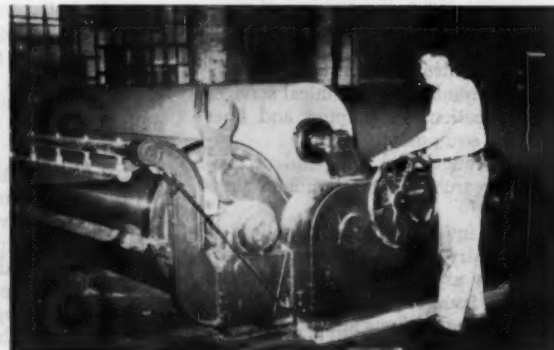
Tom Coldewey, vice president of St. Joe (Fla.) Paper Co.—1960; Ives Gehring, mill mgr., Oswego Falls (N.Y.), Corp.—1961; Bemis Wood, asst. to vice pres. for production (Larry Shattuck), Strathmore Paper Co. (Mass.)—1962; and Glen T. Renegar, mill mgr., C.C. of A., Philadelphia—1963.

F. LeRoy Zellers, vice president, Chillicothe Paper Co., was elected a trustee of the association for a three-year term. Mr. Zellers is former APPMSA president.

Elected to one-year terms as new directors of the association are Glen Sutton of Sutherland Paper Co., and Howard Street, National Vulcanized Rubber Co.

James Smith, sales mgr., felt div., Albany Felt Co., Albany, N.Y., is new chairman of the Supts. Affiliates Division, succeeding Jack Dickson, Stowe-Woodward Co., Kalamazoo, Mich.

Joseph A. Paciello, DuPont Co., was elected first vice chairman and Richard A. McKay, Holyoke Wire Cloth Co., second vice chairman, of the Affiliates.



MILL WHERE NEW SUPTS. PRESIDENT also WORKS . . . left, general view of Mead Harriman mill, built in 1929; right, Manchester Machine Co. reel which was a relatively recent addition.

# Supts. Name Change, Talk Costs

## PIMA to be new sobriquet of APPMSA

• Cost reduction was the theme of two entire sessions, parts of others and a luncheon at the 1958 convention of the American Paper and Pulp Mills Supts. Assn., which is now in the process of shedding its 39-year-old name for a new one—"Paper Industry Management Association."

Ever since the 1957 Chicago meeting, the "inner circle" leaders of APPMSA have been debating ways of getting rid of their present elongated name, and searching for a new one which would appeal to mill supervisory staff both above and below the rank of superintendent. On Sunday night, June 1, in a room at the Boston Statler, less than 36 hours before the convention began in that hotel, the new name was agreed upon.

Spearheading both the emphasis on cost reduction theme and the new name for the association was outgoing association chief, Albert E. Bachmann, who is president of Missisquoi Corp. and Fonda Container Co., St. Albans, Vt. New scientific attacks on costs has been a major interest of his for several years and he marshalled industry men and Harvard professors for an all-out hard-hitting performance at Boston.

As for the new name, Mr. Bachmann also had this plan in mind for a long time and he was instrumental in selection of the name Paper Industry Management Assn. "PIMA," he pointed out, will be a short name as handy to use as TAPPI and SAPI for those major industry groups.

### Bachmann Gives Objective

"We need engineering-thinking in management," said Mr. Bachmann. "PIMA will provide the means to discuss mill problems and the management of people; for exchange of mutual experiences. PIMA will be an educational medium by which our engineers and technical men can reach practical solutions of problems."

This from a graduate of MIT and former two-year president of TAPPI. The new name was approved by APPMSA directors and there were no dissents in a vote of about 90 members in the Boston business session. However, the new name and a constitutional amendment reorienting the association along lines outlined by Mr. Bachmann must be approved by another vote at the 1959 convention in Houston.

## In Cost Reduction Discussions:

1. Chandler of Standard stresses sales-manufacturing coordination.
2. O'Connor of APPA calls for stiff dose of dynamic economy.
3. Scott Paper engineer reveals budget competition plan.
4. Kimberly-Clark supt. shows how economies work through foremen.
5. Savannah engineer says careful plans needed for maintenance.
6. New Yorker says watch out for paying for "unworked time."
7. Harvard professors give versions of cost-cutting schemes.



R. CARL "HAP" CHANDLER: "At times it is necessary to acquire existing companies. . . ."

Mr. Bachmann called on his "boss," R. Carl "Hap" Chandler, youthful president of the fast-growing new paper-packaging business empire, Standard Packaging Corp., to give the biggest punch to the anti-cost campaign. Standard's moves expanding vertically in pulp and paper—it acquired Eastern Corp. recently—and horizontally in packaging (several paper, foil, etc. companies) have stirred imaginations of many industry observers. Missisquoi and Fonda are among Standard divisions. Many industry leaders were surprised to learn Standard already was considerably bigger than Eastern when they were merged.

### "Team Approach" Urged

"I don't believe we have too much productive capacity, but I am confident our industry is suffering from a lack of sales planning and determined sales effort as related to existing capacity," said Mr. Chandler, at the convention luncheon. "The lack of demand and declining profits can be overcome by a team approach, wherein

all persons participating in top management, manufacturing and sales management and research and development pool their energies to sell our products and to find new uses for them."

He said sales forecasts, budgets, quotas and costs must be reviewed monthly to evaluate progress. Some 68% of customers drift away because of indifference of paper firms, he said. "The sales force is not the whole company but the company is the whole sales force." He said salesmen often call on customers they like instead of those they could sell, and 80% of sales are not made until after a fifth call.

"Every company should have a product profit and loss report, and this should be analyzed regularly by sales and manufacturing," he said. "Greatest aid to cost reduction is a well-planned sales program and it is important that sales and manufacturing coordinate efforts in determining product lines."

Observers of Standard's rapid growth pricked up ears as "Hap" Chandler said: "At times it is necessary to acquire existing companies to meet geographical service needs; to provide related product lines as a protection and aid in selling more of the established line; to obtain organization and products to serve as an offensive as well as defensive measure."

### Calls for Dynamic Economy

Both Mr. Chandler and another featured speaker, Robert E. O'Connor, executive secy. of American Paper & Pulp Assn., used a 1947-to-1957 industry study by John Vogel, APPA statistician, showing how paper and allied industry sales have gone up 80%, production has gone up 40% but profits have declined over 5%. Both quoted liberally from Mr. Vogel.

Mr. O'Connor said this industry



"needs a stiff dose of dynamic economy . . . in aggregate it may be desirable to increase rather than decrease total costs."

Mr. O'Connor said this is a time for more research investment and "in-cisive view of merchandising, production, research and personnel programs." He noted that FTC figures for paper and allied industries, a decrease of 2.5% in costs, all other factors remaining the same, would bring a 20% increase in profits.

In the past ten years, he noted, wages and salaries have risen 126%, dividends 80%, equipment costs have risen 93%, wood costs in the Lake States 23% for spruce, 42% in the Southeast for rough pine.

"It should be of prime concern to all managers," he said, "that production workers payrolls have increased more rapidly than productivity."

#### How Scott Cuts Costs

One of the best talks on costs, even overshadowing those by the Harvard profs, was by D. J. Dughie, manager of industrial engineering, Chester, Pa., Scott Paper Co. He revealed how at Scott mills cost budget vs. performance comparisons are publicized within the mill daily, weekly and monthly. Budgets are established historically over years when mills were oversold. Labor, maintenance and other costs are included. First line supervisors must put programs across.

Actual goals have been passed by 60% in Chester. Cost control and cost reduction comes out of the budgeting. Budget records are guide posts for cutting costs by 1, effective purchasing, 2, effective labor, and 3, effective materials. Managers in the Scott mills must be sure that no long range or short range program is hindered by reductions effected.

#### Kimberly-Clark's Method

Another mill man, Thomas E. Hoover, production supt., Neenah, Wis., Kimberly-Clark Corp., told how K-C stresses foremen's education in basic economics and cost control systems to effect savings. A foreman's



#### Ex-Cutter Boy Is Honored

Up from piling straw as a youngster in an Indiana mill and working as cutter boy in his first job with Container Corp. of America, GLEN THOMAS RENEGAR has been elected fifth vice president of the Supts. Assn. In five years, therefore, he is slated to be president. "Tiny" Renegar was born near Harmony, N.C., on a farm. He got his taste of papermaking in a Carthage, Ind., straw mill and graduated from U. of Indiana. He joined CCofA at Philadelphia in 1921 as cutter boy, and his whole career has been in that mill through tour boss, supt., gen. supt., and as manager since 1952.

knowledge and leadership must be developed. They are "dedicated" to safety, quality and housekeeping. And now the company "is giving this a try in cost reduction."

He told how foremen must be prepared to answer questions of workers about company plans and profits, etc. "The employees go further in school now, and read more nowadays, so foremen must be better prepared," he said.

As tools for this training, he mentioned Harding College (Arkansas) seven minute cartoon movies, available free or at nominal cost, and 40 min. films from the American Economic Foundation, which teach American systems of economics. AEF sends out literature, "good to hand out to foremen."

In his mill, Mr. Hoover has four as-

sistant supts., and each of these has seven or eight foremen. They meet at dinners with top hourly employes, use flannel board type talks, films, etc., to get across programs.

#### Savannah's Methods Arouse Interest

Henry Bullard Harris, mill engineer, Union Bag-Camp Paper Corp., Savannah, Ga., urged mills to adopt a carefully planned, highly organized program as the only practical approach to reducing maintenance costs.

Preventive maintenance pays, he said, as do mobilized transport of people and materials, planning and scheduling of work, authorized work orders for all non-emergency work, using corrosion experts, welding experts, etc., using advice of maintenance men in buying new machinery and materials, getting salvaged material back into use, using improved inventory systems, etc. Union Bag-Camp's training program and cost analysis program stirred up much interest among his listeners.

He told how his company uses several full-time paid instructors in training crews, as well as their own foremen.

#### Watch Unworked Time Pay

H. M. Gray, vice pres., operations, Sealright-Oswego Falls (N.Y.) Corp., said many healthy companies were "over-maintaining equipment at cost of thousands of dollars a year." Also less robust firms, he said, lose money by under-maintaining equipment. He said there is much loss time and unnecessary expense in supplies and fittings.

Mr. Gray asserted "much can be done to eliminate overtime" and said "an increase of wages is not justified without a corresponding increase in productivity per man-hour."

He said he believed in paid holidays, vacations and other benefits if they do not increase the selling price, but "many companies are increasing their costs by paying for more and more unworked time." This, he said, could lead to a system so expensive it would "fall of its own weight."

#### What Harvard Profs Said

Prof. Clarence B. Nickerson of Harvard Business School outlined various control techniques companies may use—comparison of present and previous actual results, standard costing, variable budgeting and fixed budgeting. Different types of companies may use one or the other system.

"One of the best ways to bring costs to attention of the supervisor," he said, "is to develop, in effect, a 'rental' charge for the use of the plant he runs, its equipment and overhead

#### New Affiliates Chairman—Jim Smith



Smith ..... Dempsey ..... Murphy

James Smith, sales mgr., Felt Div., Albany Felt Co., is the newly elected chairman of Affiliates of Supts. Assn. He is shown with past chairmen of Connecticut Valley Supts.: Walter Dempsey, tech. consultant for H. Waterbury & Sons (he was gen. mgr. of now defunct Doeskin tissue operation at Mt. Tom, Mass.); and John D. Murphy, supt., Chemical Paper Co., Holyoke, Mass.

services. He would be charged so much per day, per labor-hour or per machine-hour for plant, equipment and overhead."

Prof. Nickerson stressed that when supervisors make guesses as to company costs, etc., it can be far more harmful than if the company gave them the facts.

#### "Non-Financial" Incentives

Prof. Alva L. Kindall of Harvard Business School stressed that "non-financial incentives of productivity," which he described as results of good personnel administration, "will produce greater productivity and more cost reduction than most financial incentives."

Some of these "incentives," he described as a management team of high principles, published policies, clear cut organization, two-way discussions with staff, work environment "with self-respect and dignity," steady and certain employment, etc.

His talk recalled that Mr. Dughie of Scott Paper had revealed that in many Scott plants, after using financial incentives, the high productivity continued even when these incentives were taken away. A New York mill reported a similar experience.

#### Other Speakers

Ralph Metz, of West Virginia Pulp and Paper Co., Covington, Va., told how better safety practices reduce costs. He said 20% of industrial injuries result from unsafe conditions, the other 80% from unsafe acts of people. Supervisors, he said, are in the best position to eliminate unsafe causes.

Of course, there were many other papers on operations and equipment, like one by E. N. Wennberg, Weyerhaeuser Mill Mgr., who stressed costs in making board. A hot press installation at Chesapeake Corp. of Va. drew interest. Use of Rotabelts on Fourdriniers were reviewed by a panel headed by Angus J. Gardner of Rice Barton Corp.

#### Mead Pitch Controller

A new Mead mixer method of controlling pitch in sulfite pulp was explained. The method predicts which pulps are likely to give trouble because of pitch, done at Chillicothe, O., mill on a car-by-car basis. A bentonite slurry is used to make troublesome pitch which would deposit on equipment quite impotent under certain conditions. This is only needed at pulpers in the operations. It remains effective throughout two-stage bleaching and washing.

A talk on air pollution stressed that public interest indicates high efficiency

#### Travelers to New England

Roger Wiewel, representative for Weyerhaeuser Pulp; Warren Naugler, of Derry, N.H., and Dick Stroud, of Portland, Me., both with Huyck Felts.



Wiewel ..... Naugler ..... Stroud

collection equipment is needed on power plant stacks. The kraft industry does not have a critical air problem at this time, said Dr. N. J. Lardieri of the National Council for Stream Improvement.

Carl Swartz, Beloit Iron Works, told of new applications of the suction former. PULP & PAPER has published first stories on this new Stevens former, as used at Irving Paper Mills and on the Crown Zellerbach so-called "little machines" in California.

#### Attendance Note

There were about 600 registered at the convention as of the last day, with the annual Get-Together Party drawing some extras. For the 13th year in a row, Norman O. Weil, v.p. of W. S. Tyler Co., chairmanned the Get-Together committee.

#### Boston Awards Are Made For Essays in 1958

A. LeRoy Bolton Jr., treasurer of John W. Bolton & Sons, Inc., in announcing prize winners for an essay contest on the subject of company-community relations, stressed the need of sincerity in this field.

"We must avoid the 'looks like a good idea'—let's try it—lip service attitude," he said.

He announced that 1958 essay top winner was John R. Bentley, asst. in traffic, production planning, and purchasing, Western Kraft Corp., Albany, N.Y.

Second prize went to a woman who won third prize last year—Ellen Arnold, secretary to the plant engineer, Congoleum-Nairn, Inc. Cedarhurst, Md. Third was Warren B. McGranahan, sales promotion and advertising, Texon, Inc., So. Hadley Falls, Mass. There were seven fourth prizes.

In attendance at the Supts. Assn. were these PULP & PAPER staffers: Albert W. Wilson, editor; Maurice R. Castagne, Eastern editor; Kenneth A. Johnson, manager of P&P Cleveland office.

#### A "Superintendents" News Note



Stanley ..... Felix ..... Robert

#### 4 Wilkes Brothers Are Supts., 5 in Industry

One of the five Wilkes brothers in the paper industry told PULP & PAPER that the eldest of their group, Stanley, supt. and technical director of Productora de Papel S.A., Monterrey, Mexico, 80-ton-a-day producer of board, bag, wrapping and kraft creped and waxed papers, has been hospitalized because of a serious illness. Stanley's many friends from his days in the Southern and New England and other U.S. mills will be wishing him a speedy recovery. His wife died recently in Mexico.

The other Wilkes brothers who are superintendents are Felix, supervising the new kraft paper machine room at American Box Board Co., Filer City, Mich.; Robert, gen. supt. at Green Bay Paper & Pulp Co., Green Bay, Wis., and Walter, paper mill supt., Alton Box Board Co., Alton, Ill. A fifth brother, Jack, has left the mills to go in paper converting business with a partner in Grand Rapids, Mich., making twisted cord.

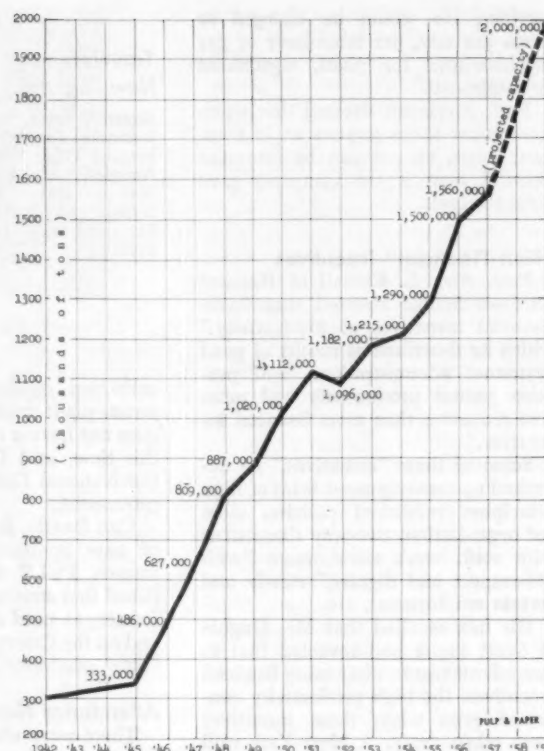
And that isn't all. Two of their four sisters are married to papermakers in Brokaw, Wis., and Stevens Point, Wis., mills. Another sister is married to pulpwood producer and the fourth is a spinster.

The Wilkes brothers were born in Buffalo, N.Y. Their father moved to Wisconsin to be a farmer. But farming was not for the boys. The Mosinee Paper Mills were close by. They all got their start there as papermakers.

## TAPPI 9th Coating Conference

THE BIG MARKET FOR COATING is still printing papers (1,559,111 tons in 1957, up 3.1%). But now southern kraft mills poise for the plunge. The trailing blade is one reason why . . .

# Coating Is Still Growing



Pushed by plastics and aluminums, paper and board achieve new life and glamour to hold markets, reach out for new ones

By MAURICE R. CASTAGNE  
Eastern Editor, PULP & PAPER

● On the surface, TAPPI's Ninth Coating Conference held at Bedford Springs, Pa., May 14-15, appeared subdued when contrasted with 1956 and 1957. Perhaps this was because of the increased competitive nature of coating in a traditionally tight-lipped industry. But deep down, it was another story.

Because it was only when you probed beneath this "nothing new" atmosphere that you realized that coating was not coasting. If anything, it was in the final countdown throes to launching an "Explorer" or "Coatnik" that could conceivably overshadow all previous coating developments.

One coating expert put his finger on it this way, "There's probably not one Southern kraft mill that's not on the brink of coating or not experimenting with coating. I wouldn't be surprised if someday coated board surpassed coated printing papers."

### Trailing Blade Still Hot

There's no let up in the pace set by trailing blade coaters. At the 1956

Conference, it was the dominant topic, because of its successful operation on publication papers for *Look* magazine at Blandin Paper Co. At last year's meeting, the number of trailing blades had soared to 20 or more units and PULP & PAPER reported it was a hot subject of discussion.

Now, it is estimated that there are 45 trailing blade coaters in operation or being built for grades including publication, breadwrap, specialties, high grade coated enamels, cigaret flip-top boxes.

Explains one coating specialist, "In its early operation, the blade was confined to lightweight production. However, this base has now broadened and now includes use in applying substantial coating weights."

Item: The Black-Clawson Co. has just entered the trailing blade field with Flexiblade, a development of the Rapinwax Paper Co., which has operated the Flexiblade for opaque breadwrap for several years. Features: flexible blade doctor; enclosed coating feed system and flexible blade settings at various positions, about a resilient rubber-covered backing roll. This brings to three (Rice-Barton and Beloit

are the other two) machinery manufacturers now producing trailing blades.

Item: West Virginia Pulp and Paper Co. is now producing its Brite-Pak coated bleached board on a 216-in. on-the-machine blade coater.

Item: As reported in this magazine (P&P, May, 1958), the St. Francisville, La., mill of Time-Crown Zellerbach will feature an on-the-machine trailing blade coater on its 246-in. wide paper machine. This will be the widest blade in use and will be producing publication papers.

### Printing Papers on Upswing, too

Considerable speculation has been stirred by a supernova in the coating firmament—the North Star. This will be Oxford Paper Co.'s re-entry into the high gloss enamel field with a trailing blade. Non-glare papers will be also produced on this off-the-machine coater.

Item: Blandin Paper Co., a relative newcomer to the coated publication field, is readying a second off-the-machine trailing blade coater for start-up early 1959, is eyeing a third "within the next five years." This marks the



complete reversal of Blandin from a non-coating mill to 100% coating.

#### Non-Glare Definitely a Trend

That's what some coating specialists told PULP & PAPER at Bedford Springs, confirming previous reports in this magazine. Some attribute this trend to the trailing blade with its ability to lay down an excellent printing surface without need for excessive supercalendering using highly polished steel rolls. With the combination of smaller sized pigments, the trailing blade, and fiber-roll to fiber-roll supercalendering, plus some other tricks mills are not willing to talk about, a good non-glare coated printing paper can be produced. What's more, explains one mill man, you don't damage or crush the fibers in your supercalendering operation.

In printing papers, says one conferee, publishers are beginning to realize that you don't have to have high gloss to get a good printing job. You can do just as good a job with the non-glare coated papers using the trailing blade.

#### Plastics and Aluminum

In addition to fighting the fight of overcapacity, the industry faces competition from two brash youngsters with plenty of get up and go in the packaging and printing papers field: plastics and aluminum. Both are spending heavily on research, new plant facilities, sales and advertising. Both are looking to replace markets now being held by paper and paperboard, some markets have already fallen, others are on the brink.

Item: Polyethylene has invaded the breadwrap field, joining cellophane and waxed papers. Milprint, Inc., says its polyethylene breadwrap has increased customers' sales by 20% to 50%. Fewer returns of stale bread.

Item: Crown Zellerbach's Western-Waxide Division is now producing Crown-Seal, a film-free polyethylene package for bread.

One major battlefield is the supermarket where the package, sometimes called the silent salesman, must be attractive enough and stand out enough, so that the shopper will select it above others. Designers of packaging, in their search for the different look, are moving more and more to plastics and aluminums.

Item: One major soap manufacturer is packaging his product in an aluminum foil wrapper instead of paper.

#### What South is Doing

Printing on Southern kraft is somewhat of a problem, says one mill man. Coating not only increases printability but has other advantages. For in-

stance, some Southern kraft mills are considering functional two-side coating: polyethylene on one side for moisture vapor resistance and a pigmented coating on the other side for better printability. Markets eyed are foodboard (a fast growing industry), frozen food wrap and ice cream cartons.

Item: Riegel Corp. has already started up its 236-in. wide "Carolina Belle" bleach board machine with an on-the-machine air knife coater on June 3. Says Riegel: "On-the-machine coating of paper and board is a distinctive feature of Carolina Belle. To impart easy printability, extra-smooth surface, greaseproofness, it is most economical to coat the paper on the machine. This is said to be the first air knife coater designed from the ground up for a new board machine."

Products: Foodboard for food packaging, drinking and food cups, folding cartons, including crush-proof cigaret boxes. Also, special papers for tabulating cards, shipping tags, postcards, file folders, linerboard and advertising printing. Capacity: 300 tons/day.

The possibilities and potentials envisioned if Southern kraft mills go to coated are staggering. Southern mills now produce more than 54% of the nation's paper and paperboard. Backed by research, who knows what markets coated kraft may not invade or what tonnages might be involved.

Item: Four Southern kraft mills are installing or have installed trailing blade coaters.

#### What's Ahead for Coating

In taking a guesstimate at the future of coating, it is well to recall two significant forecasts, both made by men who are specialists in their fields:

It was in March 1954, that Glen Sutton, Sutherland Paper Co., made

to PULP & PAPER his now-famous prediction that within five years over 75% of all folding boxes will be coated.

"Within ten years," he said, "virtually all the folding box production will have to be coated to be competitive. Better printing, clearer reproduction of half-tones and generally improved eye-appeal are among the advantages of coated boxboard." The use of coatings will give mills a lower furnish cost and a better sheet, he said.

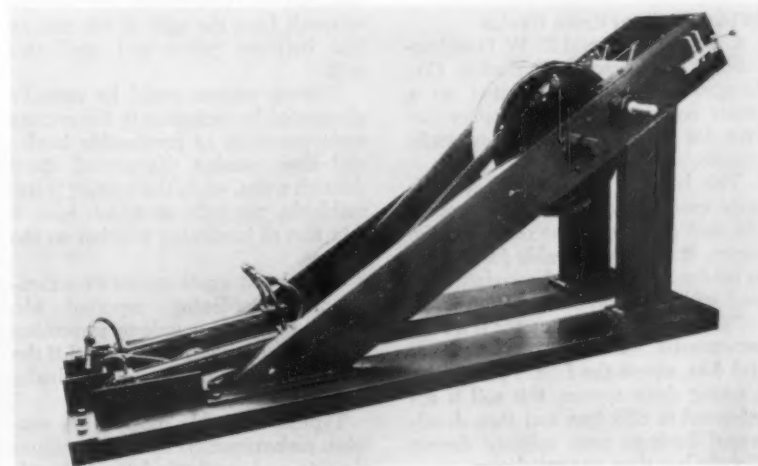
Coated boxboard production figures are purely guesstimates; no official compilation of figures are available. Two experts estimate that 1957 coated folding boxboard production was around 550,000 tons. This would not include the fast-rising foodboard and linerboards.

Based on Mr. Sutton's prediction, a good guess would put folding boxboard alone at close to two million tons by 1959, on a par with coated printing papers. Coated linerboard is anybody's guess; special foodboard, too.

#### Coated Magazine Papers

It was at the Sixth Coating Conference in Cleveland in 1955 that George K. Ferguson, then president of Watervliet Paper Co., said the day will come when 90% of all printing papers will be coated. "All we need to know," he said, "is how fast America is growing and how zealously we can guard our freedom."

Dr. Louis T. Stevenson, economist for Tucker, Anthony and R. L. Day, in a study prepared for the Magazine Publishers Assn., predicts that magazine paper will grow from 1,585,000 tons in 1955 to 1,845,000 tons in 1959; 1,874,000 by 1960 and 2,164,000 by 1965. Coated magazine papers



BUILT AT MODERATE COST and economical to operate is this lab unit trailing blade device which makes it possible for lab to give service to commercial operations at Weyerhaeuser Timber Co.'s Longview, Wash. mill.

will take a lion's share of this growth, and as predicted by Dr. Stevenson, will be as follows:

Actual	Projected		
	1955	1959	1960
Uncoated	645	649	651
Coated	940	1,196	1,233

Actual	Projected		
	1965	1970	1975
Uncoated	651	652	651
Coated	1,513	1,817	2,180

The entire growth in magazine papers, says Dr. Stevenson, will be in coated papers.

#### Theme of Meeting

Theme of the Ninth Coating Conference was coating formulations, chosen because, explains one mill man, it is one of the most important problems of the coating field, in that you have to adapt the nature of the coating you are applying to meet the various requirements of the printer, paper converter and purchaser. Changes in technological trends in printing and packaging make it necessary for the paper coater to change his signals and modify his sheet to meet requirements and he has to do this constantly.

Further, he said, the increasing developments of new types and grades of pigments, adhesives and other coating ingredients make it necessary to re-formulate coatings to take advantage of these new modified materials.

Two outstanding papers at the Conference concerned a lab device for studying the trailing knife process and a study on elimination of tracking in paper coating lays.

#### WTCO. Trailing Knife Device

Gary W. Jones and D. W. Quackenbush of Weyerhaeuser Timber Co., Longview, Wash., cooperated on a paper on their simple laboratory device for studying the trailing knife process.

This lab unit can be built at moderate cost and is economical to operate, said Mr. Jones who delivered the paper. It makes it possible for the lab to render service to and correlate very well with commercial operations.

"The heart of the apparatus is a rubber-covered roll, 20-in. in diameter and 6-in. across the face. Powered by a spring drive system, this roll is accelerated to 850 fpm and then decelerated back to zero velocity during slightly less than one revolution.

"Coating is applied by a blade pressing against the raw stock, affixed to the roll periphery. Angle, extension

and pressure of the blade are all adjustable; the unit is thus adaptable to studying blade variables as well as coating formulation work.

"Longer contact time between coating and the raw stock is by a rod type 'pre-applicator' which spreads on a thick film of coating about 8-in. ahead of the blade. This simulates the effect of pond depth in commercial coater and has significantly improved correlation between lab and the mill.

"In designing this equipment it was necessary to calculate in advance what spring constant would be required to attain desired maximum speed. To do this frictional effects were ignored and the spring constant was calculated on the basis of elementary mechanical principles. Results so calculated were found to agree very well with actual velocity measurements that were performed later on using a photographic technique.

"This coating applicator is considered successful to the point of being indispensable to the lab in developing the commercial process. It is recommended as a favorable compromise between the one extreme of having nothing but manual drawdown devices and the other of going to a relatively expensive web-fed pilot unit."

In answer to questions, Mr. Jones said the unit is not a messy operation and that it is available to interested companies and could be adapted to higher speeds (about 1,500 fpm would be maximum).

#### Elimination of Tracking

Dexter L. Wolfe, Kimberly-Clark Corp., Neenah, Wis., discussed a process resulting in eliminating coating pattern or tracking which is typical in multiple roll coating. Causes of pattern, not well understood, are thought to result from the split of the coating film between paper and applicator rolls.

Coating pattern could be virtually eliminated by including in the coating some reactable or hardenable binder and then passing the coated sheet through a nip, while the coating is still moldable, the rolls of which have a thin film of hardening solution on the surface.

This almost simultaneous smoothening and hardening, reported Mr. Wolfe, produces a unique smoothing effect which cannot be obtained if the two operations are used individually or in sequence.

Typical reactable binders are proteins, carboxymethyl cellulose, sodium alginate and synthetic latices. An effective combination is CMC, starch and styrene-butadiene latex with the total binder content of from 14 to 20

parts by weight per 100 parts of mineral.

The best hardening or immobilizing agent is papermaker's alum. The amount of alum retained by the paper is approximately .5 lbs./ream. A sufficient amount of precipitant is added to the reaction rolls to leave a slight film on the rolls after the coated sheet leaves the roll.

A typical coater arrangement is to apply the coating to both sides of the sheet at once by a K-C Mead type multiple roll coater. The coated sheet then passes over a pair of small diameter revolving smoothing rods to partially smooth the coating pattern. Then the sheet goes through a pair of pressure rolls, on the surfaces of which is a film of hardening solution.



Pres. W. L. KEADY, Fibreboard Paper Products Corp., expects increased acceptance of packaging in new fields. . . .

#### Discusses Mill Plans

Paperboard demand will increase due to population growth and the trend to more self-service stores, W. L. Keady, president of Fibreboard Paper Products Corp., San Francisco, told PULP & PAPER recently.

Further increases in the firm's primary and converting capacities are anticipated by 1959, said Mr. Keady. To PULP & PAPER's inquiry concerning Fibreboard's plans for constructing a \$40 million pulp-paperboard plant at Humboldt Bay, Calif., in conjunction with Simpson Timber Co., he said this is still "under active consideration."

Pres. Keady pointed out the project has been slowed by a "number of things," including the fact "there seems to be plenty of paperboard right now." But these conditions "could change quickly, and timing must be keyed in with development of the economy," he said.

The site near Eureka has already been selected (owned by Simpson), and water bonds approved by voters but some waterway easements are yet to be obtained. Raw material would be quality residues from forests and sawmills.

## Crain and Ward Honored by I.P.

Election of Carlie L. Crain and George T. Ward as vice presidents of International Paper Co. has been announced by President Richard C. Doane. Both new officers continue with the Southern Kraft Division, headquarters in Mobile, Ala.

Mr. Craine, production manager for the Division, first joined this industry as a water boy, with the Louisiana Fibreboard Co. in 1916. After a period with Bogalusa Paper Co. he joined the late R. J. Cullen, former chairman of International Paper Co., who was then heading Bastrop Pulp and Paper Co. When Bastrop was purchased by International in 1925, he stayed on, serving successively as tour foreman, pulp mill supt., and general supt. at six I.P. Southern mills. In 1941 Mr. Craine was named coordinator of pulp mills for the Division, in 1951 assistant production manager, and in 1952, production manager.

Mr. Ward has served as chief division engineer since 1945. After joining International as an engineer in 1930, he served in engineering capacities at several I.P. mills. In 1944 he was named asst. division engineer, becoming chief in 1945. He supervised I.P.'s extensive postwar expansion in the South.

**MR. CRAIN'S RECORD**—Born Nov. 2, 1900 in Washington Parish, La. Employed by Bastrop Pulp and Paper Co., Bastrop, La. (which was purchased by International Paper Co. in 1925) in May 1921 as a pipefitter helper on construction. Pulp mill tour foreman, Bastrop Mill, 1921-27. Pulp mill supt., Bastrop, Camden Mill, Camden, Ark., 1927-29. Pulp mill supt., Mobile Mill, Mobile, Ala., 1929-30. Pulp mill supt., Panama City Mill, Panama City, Fla., 1930-37. General supt., Georgetown Mill, Georgetown, S.C., 1937-38. General supt., Springhill Mill, Springhill, La., 1938-41. Coordinator of pulp mills for Southern Kraft Division, headquarters Panama City, 1941-42. Mill manager, Georgetown Mill, Georgetown, S.C., 1942-48. Coordinator of pulp mills, Southern Kraft Division, Mobile, 1948-51. Assistant production manager, Southern Kraft Division, Mobile, 1951-52. Production manager, Southern Kraft Division, Mobile, 1952. Married Miss Hattie Blackwell. They have two daughters.

**MR. WARD'S RECORD**—Born Dec. 7, 1907, DeFuniak Springs, Fla. Graduated from Virginia Military Institute, 1928, with b.s. degree in civil engineering. First employed by International May 15, 1930, as an instrument and layout man during construction of Panama City Mill, Panama City until 1936. Pulp mill engineer, Georgetown Mill, Georgetown, S.C., 1936-37. Pulp mill engineer, Springhill Mill, Springhill, La., 1937-38. Bleach plant supt. and asst. general supt., Springhill Mill, 1938-40. Construction engineer, Bastrop Mill, Bastrop, La., 1940-44. Asst. division engineer, Mobile, 1944-45. Chief engineer, Southern Kraft Division, Mobile, 1945. Married Miss Alberta Poppell. They have three children.

**NEW V.P.'S INSPECT SHEET** in front of reel of newsprint made on Mobile Mill's No. 5 Machine in this picture especially posed for PULP & PAPER.



Carlie L. Crain ..... George T. Ward

## Representative Pulp and Paper Companies Sales and Earnings—First Quarter 1958

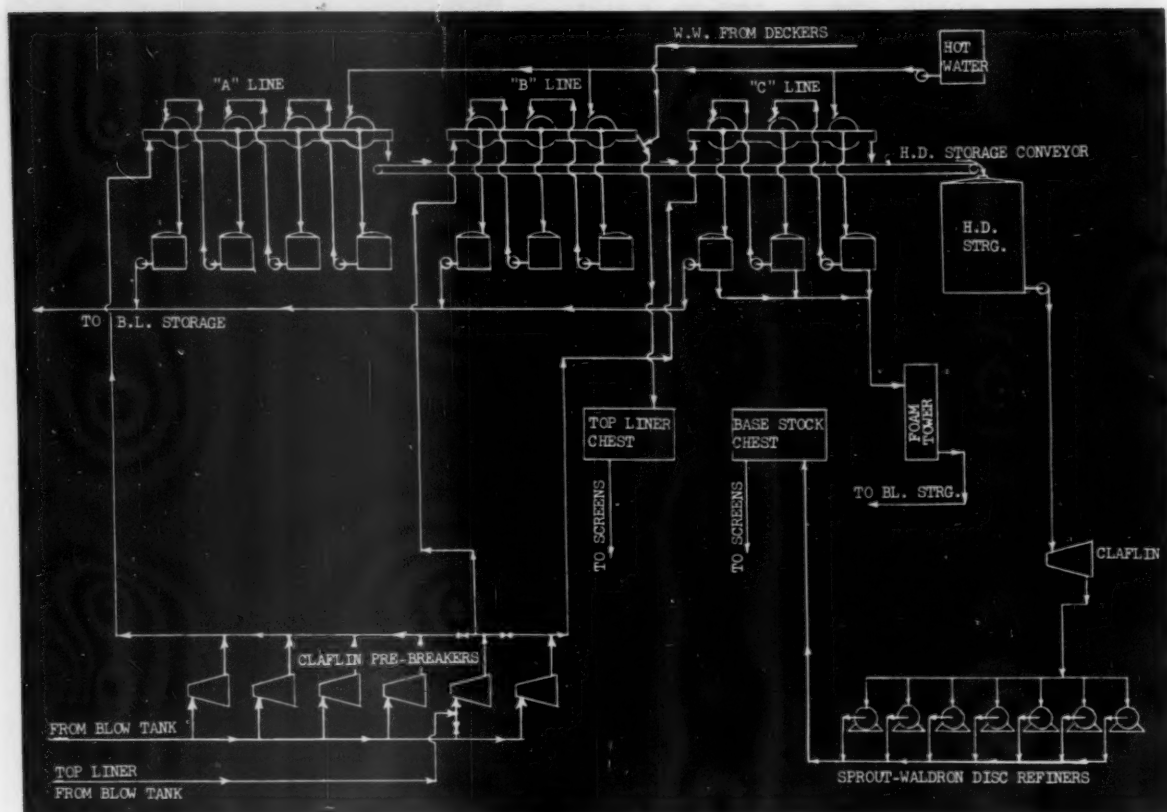
The sales and earnings for the First Quarter of 1958 were especially prepared for PULP & PAPER by Cyrus J. Lawrence & Sons, members New York Stock Exchange, from statistical services and published reports. While the figures are believed to be correct, no guaranty is given as to their accuracy.

	Net Income (000)	Income Bef. Taxes (000)	% of Sales	Net Income (000)	Net Per Share
<b>MARKET PULP (also Lumber, etc.)</b>					
Puget Sound Pulp & Timber	\$ 5,382	\$ 1,336	24.8%	\$ 652	\$0.28
Rayonier Inc.	25,578	1,190	4.7	478	0.09
MacMillan & Bloedel (Fiscal yr 9/30)-(2nd Qu.)	39,735	2,916	7.3	1,621	0.31
Weyerhaeuser Timber	92,702	17,820	19.2	10,760	0.36
<b>NORTHERN INTEGRATED COS.</b>					
Diamond Gardner	39,422	n.a.	—	1,785	0.47
Eastern Corp.	5,783	169	2.9	162	0.41
Glatfelter, P.H.	5,642	995	17.6	438	1.18
Great Northern Paper	12,227	100	0.8	48	d0.03
Hammermill Paper	12,127	833	6.9	446	0.39
KVP (Fiscal Yr 9/30)-(2nd Qu.)	12,653	1,225	9.7	576	0.64
Oxford Paper	14,725	1,482	10.1	670	0.58
Warren, S. D.	15,306	n.a.	—	877	0.80
<b>INTEGRATED—NORTH AND SOUTH</b>					
Container Corp.	60,681	6,897	11.4	3,328	0.31
Crown Zellerbach	108,572	11,893	11.0	7,367	0.51
International Paper	219,396	32,559	14.8	16,160	1.25
Kimberly-Clark (Fiscal Yr 4/30)-(4th Qu.)	84,106	n.a.	—	5,759	0.67
Riegel Paper	14,857	1,416	9.5	799	0.61
St. Regis	81,625	7,336	9.0	3,519	0.41
Scott Paper	70,640	10,878	15.4	5,318	0.66
West Virginia Pulp & Paper (Fiscal Yr 10/31)-(2nd Qu.)	50,022	5,134	11.0	2,784	0.52
Union Bag-Camp Paper	36,858	7,073	19.2	3,373	0.45
<b>NONINTEGRATED</b>					
American Writing Paper	n.a.	280	—	134	0.50
Sutherland Paper	14,808	1,199	8.1	574	0.54
<b>CONVERTER</b>					
Dennison Mfg.	8,322	615	7.4	296	0.41
N.A.—not available d—deficit					



# 2-Stage Boost for Quality

at Southern Paperboard: High yield kraft pulping; continuous tall oil system; sweeping machine improvements



NEW WASHING AND REFINEMENT CHANGES are key to successful

## High Yield Kraft Pulping

• Without cutting an additional tree, pulp production at Southern Paperboard Corp., Port Wentworth, Ga., was boosted from 600 tons per day capacity to its present maximum of 725 tons. Method: Primarily by its own adaptation of high yield pulping.

Investigating various high yield processes, the staff at Southern saw certain inherent problems in applying these to their mill. They decided on an entirely new concept, incorporating mild breaking and no introduction of air prior to washing. This is, reported-

ly, the first such attempt in the industry.

Briefly, the process includes taking the stock from the blow tank through Claflin refiners direct to the washers, introducing it in the washer stage through a submerged inlet, thus eliminating pre-knotters and making certain that no air is introduced between the blow tank and washers.

Additional studies showed that any refining that might have to be done in the pulp mill could be better done after washing and prior to screening.

This system has now been in operation for some five years; Southern through this period operating at a yield of around 60% on base stock and around 55% on liner.

Washing efficiencies have been excellent, says the company. Problems normally encountered with high yield at the evaporators were eliminated. Quality was such that the mill had no problems in surpassing various customers' specifications.

The cook was tailored to high yield pulping. Chips are cooked about two

hours, using maximum "up" time of about 1.5 hours after which the chips are blown quickly. Bring up time was actually increased 50% over the old method. About 11.5 tons of pulp are cooked from 38 tons of chips, using about 15% less active alkali chemicals than previously.

#### What Claflins Do

From the digester blow tanks stock goes to the eight Emerson Claflin No. 3 refiners, powered by 400 hp, 4160 v, 3-phase synchronous motors. The Claflins break up the knots, at the same time giving better fiber separation thus preparing the stock for washing. This is necessary since high yield stock is pretty much in chip form (more like semichemical pulp).

Stock from the washers is discharged at 12% to 14% consistency, and carried upgrade on a Link-Belt rubber conveyor to a 60-ft., 33-ft. dia. Chicago Bridge & Iron high density storage tank. Capacity is about 175 tons and it has an Impco agitator and dilution equipment. Out feed is at the bottom of the tank and so are high pressure water jets. Low density storage chests can also be served by all washer lines.

#### New: Post-Wash Refining

Although the Claflins are used before washing, something different has been added with the introduction of a battery of seven Sprout-Waldron refiners following the washing. Here, essentially, comes into play one of the most important phases of the Southern Paperboard system.

The Sprouts refine and lower freeness. From high density storage, stock is pumped through a DeZurik regulator, through seven Sprout 36-2 refiners driven by 450 hp General Electric synchronous motors.

Refined stock discharges into a 15-ton stock chest and from here is pumped after dilution to 12 Impco rotary centrifugal screens. Rejects are recycled through a Sprout refiner and returned to the screens.

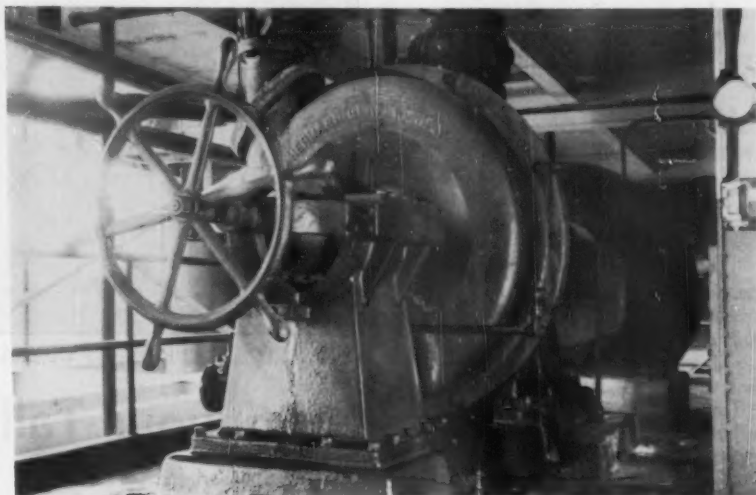
Because of the increased production rates, three existing deckers were augmented by two new ones. Stock from the deckers is discharged into a Chemical Linings Chemtile storage chest with Impco agitators.

From storage, deckered stock goes through a battery of 16 jordans ahead of the paper machine for final refining. Jordans are arranged in parallel and in series.

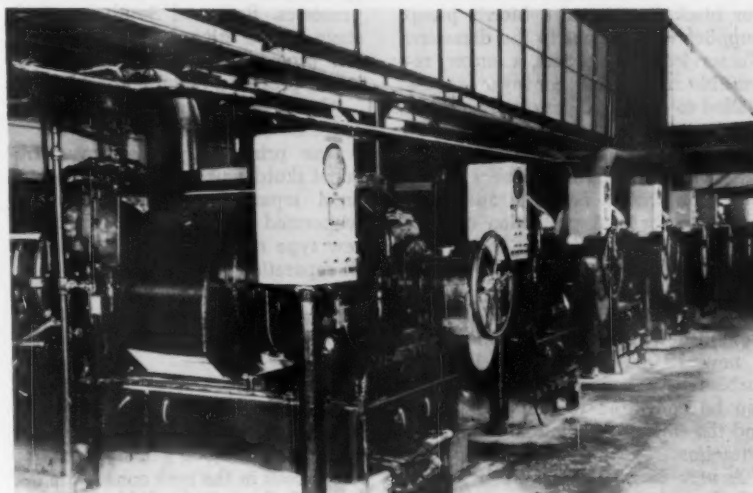
#### Other Changes

In addition to converting the pulping system from normal to high-yield several other changes were made to increase capacity and balance to the

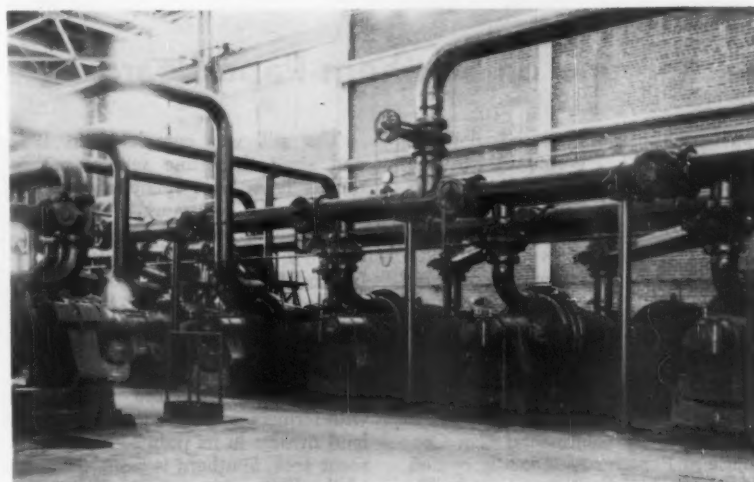
REFINING INNOVATIONS keynote Southern's high yield pulping process . . .



EIGHT Emerson Claflin refiners break up knots before washing



SEVEN Sprout-Waldron refiners refine and lower freeness after washing



SIXTEEN Jones jordans give stock a final pass ahead of the machine

system. Primarily these changes consisted of the addition of a new set of evaporators, addition of three digesters, additional steaming capacity and 12,500 kw generator.

The evaporator selected was a 6-effect CB&I Conkey-type, with barometric condenser and flash tanks. The new set was added parallel to the existing multiple effect evaporators and both re-instrumented for operation from a single point.

These new open construction evaporators, plus a new soap skimming tank, Link-Belt soap skimmer and concentrated black liquor tank are all protected by Earl Paint's Mastic (plastic coated paints).

Three new CB&I digesters, mild carbon steel, each 3,320 cu. ft. capacity (same as the original six digesters), were added. Each has strainers and hydraulically operated Paul blow and gas off valves and separate Foxboro controls. A measuring tank was added for black liquor and a Morris pump supplies white liquor to the digesters. To service the digesters, a longer, reversible shuttle belt conveyor was installed to feed all digesters from overhead tracks.

The digester operating floor was redesigned for faster, more efficient operation with a new tile and glass enclosure for dust protection of controls.

#### Additional Power Facilities

A new 160,000 pph gas or oil fired Combustion Engineering boiler and a new 12,000 kw General Electric turbine have been added. The boiler can be converted to pulverized coal and the turbine has double automatic extraction.

A new No. 10 Dorr green liquor slaker was installed in the causticizing system, providing the mill with two slakers.

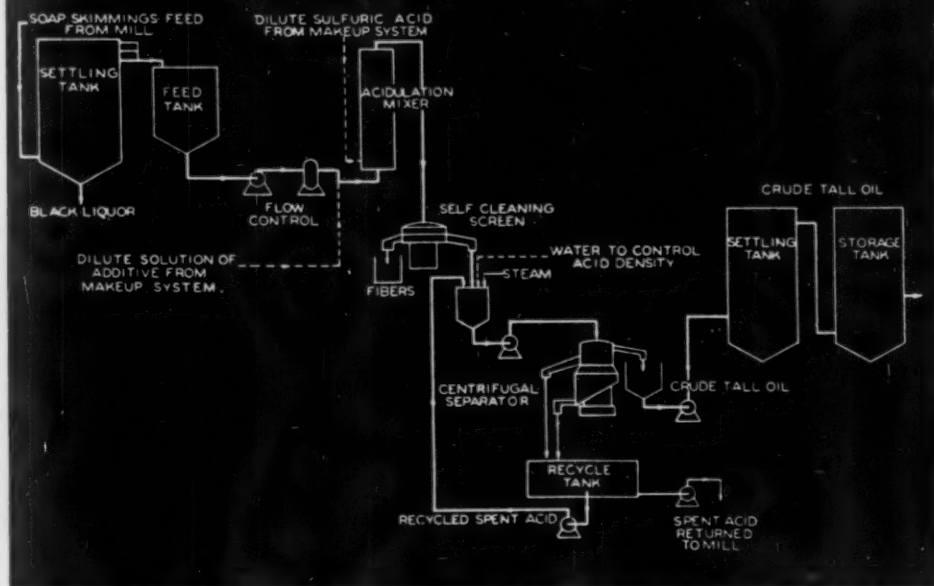
## Background on Southern Paperboard

When Southern Paperboard Corp. started up at Port Wentworth, Ga., in mid-1948, it was heralded by PULP & PAPER as a pioneering mill:

"Southern Paperboard has no history as yet, nevertheless it has already taken its place in industry history as the first Southern mill to be designed and built for softwood and hardwood kraft operations."

At that time the mill had one of the largest (234-in.) and faster (1600 fpm) kraft linerboard Fourdriniers.

Operated by Continental Can Co., Southern Paperboard is jointly owned (60%-40%) by Continental and Ft. Wayne Corrugated Paper Co.



SIMPLICITY AND EASE OF OPERATION is why Southern chose single stage

## Continuous Tall Oil System

When Southern Paperboard decided to install a tall oil plant it selected a single stage continuous system over the batch and two-stage processes. Reasoned Southern, single stage would give high yields while not producing a waste stream that would present a pollution problem.

Also favorable were the simplicity and ease of operation.

One principal problem was frequent shutdowns from plugged centrifugal separator. Solution: Southern cooperated in designing a radically new type of centrifuge bowl for tall oil separation.

At present the installation now runs five days a week producing between 3 to 6,000 lbs. of crude tall oil per hour.

#### Process Flow

Soap skimmings from the mill is pumped to a 26,000 gal. settling tank. Steam coils in the tank cone settle out some of the entrained black liquor, which are returned to the mill. Settled soap flows by gravity to a small 3,000

gal. capacity feed tank.

Settled soap is pumped to the bottom of the mixer where continuous mixing is made with dilute sulfuric acid. Soap skimmings are acidulated with the formation of a mixture of crude tall oil, lignin and spent acid. This stream discharges from the top of the mixer and passes to a self cleaning screen which removes the fibrous solids to prevent plugging of the centrifugal separation.

After screening, the hot mixture of tall oil, lignin and spent acid together with some sulfate salts is fed to a centrifugal separator.

#### Operation of Centrifuge

Nozzles in the periphery of the centrifuge bowl continuously discharge any sedimented solids. Southern altered the design to permit separation of the tall oil and spent acid without plugging that would require shutdowns.

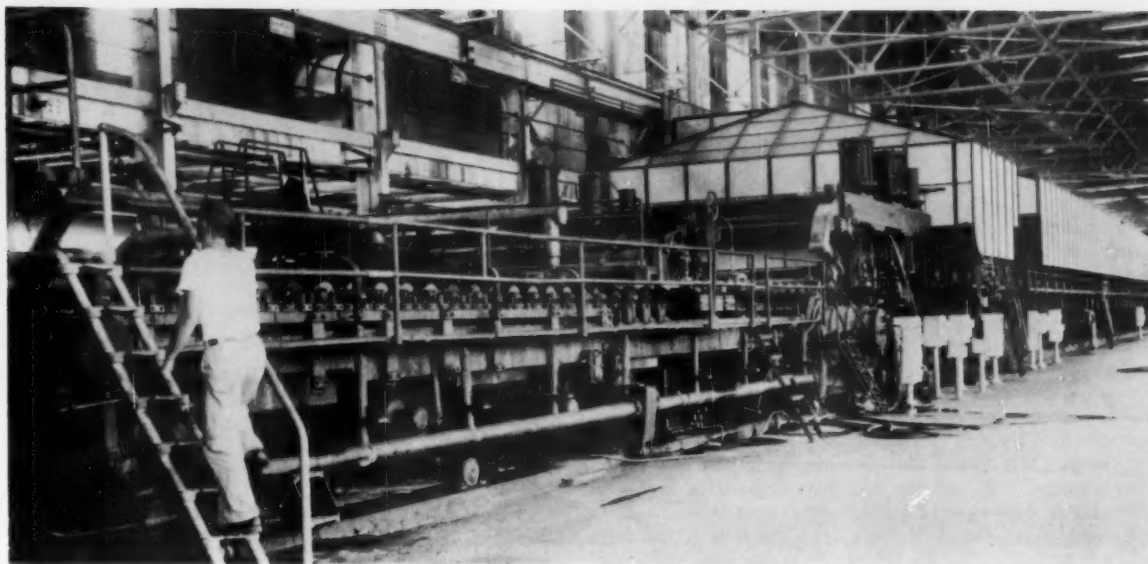
The centrifuge discharges three streams: a light phase of separated crude tall oil; a heavy phase or ring dam discharge containing lignin and spent acid.

The ring dam discharge with the nozzle discharge from the centrifuge drop to a compartmented tank. Here, lignin and spent acid are separated; the clear spent acid is recycled to the centrifuge feed tank and the lignin and spent acid discharge over a weir into a compartmented tank and are pumped back to the mill for recovery.

Separated crude tall oil is pumped from a catch tank to a settling tank with a capacity of 200,000 lbs. of tall oil. Heating coils in the cone maintain the tall oil at an elevated temperature and thus facilitate the separation of spent acid in the tall oil.

Yield of crude tall oil, calculated on the basis of a soap feed, amounts to 55.8%, which is considerably above the reported figures for batch processes.





INCREASED MACHINE PRODUCTION and improved quality were attained by

## Sweeping Machine Changes

To take advantage of the added pulp capacity and at the same time to upgrade quality, Southern decided to rebuild its 234-in. Pusey & Jones machine.

Additions included a 38,750 gpm Rotaread Deculator; a Beloit pressure-type inlet; a 54-in. Beloit suction couch roll with 24-in. dia. suction area; a 36-in. dia. lumpbreaker roll at the couch and a Rice-Barton suction hot press and a 36-in. dia. Pusey & Jones horizontal type reel.

Also added were two Nash vacuum pumps for the couch, additional separators and condensate pumps for the Ross-Midwest-Fulton drainage system, three additional exhaust fans for the Jamar-Olmen machine hood and a second supply fan for makeup air.

A primary Ingersoll-Rand 40,000 gpm fan pump feeds stock into the

sectional Deculator which deaerates stock to the primary and secondary inlets. An Allis-Chalmers 33,000 gpm primary fan pump feeds stock from the Deculator to the inlets.

### How Hot Press Works

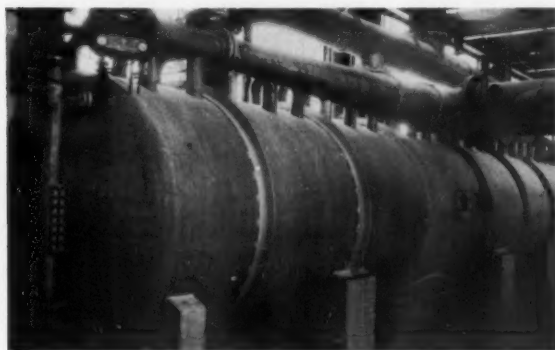
The Rice Barton hot press was installed in the first section of the dryers. After considerable study it was decided that the first six dryers would be sufficient to heat the sheet for optimum water removal. The press was installed after this sixth dryer in the space created by the removal of four dryers. The smoothing press originally installed after the second press was then moved to a position following the hot press.

The hot press has a 43-in. dia. suction roll with a Microrok cover and the bottom roll is rubber-covered.

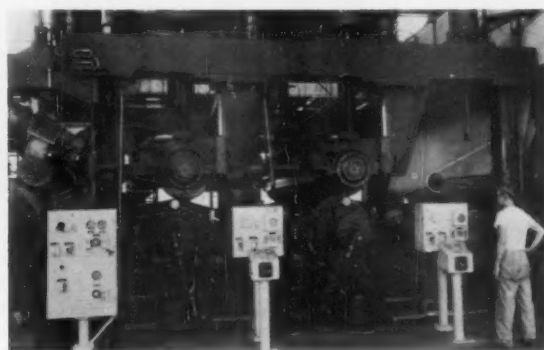
Object of the hot press is to take advantage of the low viscosity of water at higher sheet temperatures, allowing higher nip pressures to remove water in the sheet. This water would otherwise be removed by conventional evaporation.

Machine speed has been boosted on all grades, for example, on 69-lb. stock the increase was about 18%, from 630 fpm to 745 fpm. It is now producing an average of 80 tons per day more than it did prior to the rebuild.

The original plant was designed for a capacity of 450 tons a day. The result of the two improvement programs has been to increase average production from 550 tons to 650 tons or an increase of 30%, while at the same time improving efficiency in wood utilization and chemical consumption. Quality has been improved during the period of these changes, all tests climbing steadily with each improvement.



DECULATOR deaerates stock entering inlets



HOT PRESS ups production by better water removal

# Worldwide Beloit Firm Marks 100 Yrs. as Industry "Partner"

—Beloit, Wis.  
● Flags of 33 nations and of 37 of the 48 United States circled walls of what is normally a large working area of the vast Beloit Iron Works plant. It wasn't recognizable as a working area for it had been transformed into a festive dining hall.

The occasion—final luncheon of a two-day Centennial celebration, May 16-17, attended by 128 top industry executives. Seventeen were company presidents. Over twice that number were executive v.p.'s or top administrative v.p.'s. In the paper world, they were all v.i.p.'s.

The flags testified to all the places around the world where Beloit machinery is making pulp and paper. But, oddly, the name of Beloit is far less known to the general public than many of the companies it helped make famous. Rock County airport was subjected to the biggest traffic jam in its history as a dozen private company planes and three chartered air lines brought the leaders of many of these famed pulp and paper companies to the celebration. It was just a short hop from Appleton, Wis., for industry guests, who were invited to Beloit right after attending the Institute Executive Conference.

If this conveys any idea that Beloit staged a high-toned stuffy sort of extravaganza here, nothing could be farther from the fact. It was as down-to-earth as anything like it could ever be, a happy and informal get-together, as Beloit officials like to say, with their "partners in papermaking."

Elbert H. Neese, board chairman, and Harry C. Moore, president, made a pair of speeches each. Their talks at the first night's dinner at the Wagon Wheel were models of brevity. It was just a fun night. Next day they had more to say but their words were notable for modesty and good humor.

## Coosa's No. 3 Starts Up

Mr. Neese gaily mixed metaphors as he dedicated a centennial bronze plaque. "We've got something to celebrate," he said. "The new Coosa River No. 3 newsprint machine 'is already in orbit and running like a rabbit.'"

He could have added that this Coosa Pines, Ala., Fourdrinier is one of the world's biggest—336 in. wire—and made history by starting up at an amazing 1,700 fpm a week before. It will make 400 tons per day.

Mr. Moore, president since 1952 in

a period of great expansion of the Beloit plant (it has reached the river water line and can't grow anymore here), had fun, too. Saying "we still have the inspired leadership of Mr. Neese and he is still the boss," he then beat him to a punch-line that Mr. Neese likes to spring himself. He recalled that Mr. Neese was v.p. and sales manager for Pusey & Jones before his 21 years as Beloit president. Another warm touch in Mr. Moore's speech was his emphasis on "making Beloit a happy place for all its employees to work."

Of interest to this industry was his statement: "We are not planning any further expansion now, but we are committed to a research program which will pay high dividends for the pulp and paper industry in the future."

Mr. Moore recalled that in 1858, Orson Merrill came to Beloit to visit a brother, owner of a little paper mill which is still in operation on the river. Orson stayed, to start the parent company of Beloit Iron Works. One of the earliest Beloit machines still operates in the nearby mill.

Today Beloit operates Beloit Eastern Corp. at Downingtown, Pa., now shipping about as much papermaking equipment, in tonnage, as the main plant in Beloit. Other plants are Beloit Nippon Ltd., Tokyo, and Beloit Italia, Pinerola, Italy. It also has sales and distribution offices in Montreal, Paris and Caracas, Venezuela, besides three regional offices in U.S.A.

## Finnish Tribute

Pentti Halle, director of the Enso-Gutzeit mill in Vuoksenniska, Finland, made a quick turn-around 5-day visit to Beloit to pay tribute to the company which has built six Enso-Gutzeit Fourdrinier machines, two for newsprint, two for kraft paper and two for kraft pulp, producing nearly half a million tons a year. He presented Beloit with a beautifully-done silver relief map of Scandinavia. Heikki Jutila, president of Finnlines Ltd., Helsinki, which is a major shipper of pulp and paper and machinery, also gave a symbolic gift and was a speaker at the final event.

Other special guests from abroad included Hugo Agren, mill manager, Lilla Edets Paper Mill, Lilla Edet, Sweden, and Miss Martina Voith, eldest daughter of Hans Voith, president of J. M. Vaith G.M.B.H., Heidenheim,



Elbert H. Neese ..... Harry C. Moore

**NEW COOSA MACHINE** "Runs like a rabbit," said Mr. Neese. And Mr. Moore put one over on Mr. Neese, telling about his past before Mr. Neese could do it!

West Germany, a leading European manufacturer of papermaking machinery. She is working in the Beloit plant engineering section to gain experience in the industry.

Also introduced by Mr. Moore were Jack Kimberly (Kimberly-Clark), president of APPA, and Ward Harrison (Riegel), president of TAPPI, Ernst Mahler, honorary chairman of the Institute of Paper Chemistry trustees, George Ward, newly elected vice president of International Paper Co., and Cash Whipple, a 52-year Beloit veteran, now retired, who traveled widely in the paper industry.

Guests were taken on tours in small groups, shown the foundry and machine-building expansion, a new stress-relieving oven, X-ray equipment to examine castings, the new extension research facilities, the most extensive pattern storage in the industry, etc.

## More History

As for history, as further related by Mr. Moore—the original O. E. Merrill Iron Works soon became Merrill & Houston Iron Works, as George Houston became a partner. "In those days, many straw paper mills burned down, and that required a new machine be built." Bankruptcy tucked the firm in mothballs from 1882-1885. Then four former employees took the risk of starting it again on a capital of \$13,500. One was a grinder who had to "stuff his long beard into his shirt to work." Of the four, Alonzo Aldrich, chief draftsman, soon rose to the top, serving as president 1889-1931, when Mr. Neese took over. Mr. Moore "reluctantly" recalled that a machine in the early days was delivered in 90 days to Kimberly-Clark for \$14,000, along with a jordan and other auxiliaries tossed into the bargain.

Vice presidents of Beloit are Elmer Macklem, J. E. (Bill) Goodwillie, W. S. Wood, Lloyd Hornbostel, A. A.

(Lon) Neese, Ed Beachler, D. R. Simonds and A. W. Laage. Mr. Macklem is president of the Canadian firm, Mr. Wood of the Downingtown company and Lon Neese of the Japanese.

He is also secretary and his brother, Ebbie Neese is asst. to the president of Beloit and treasurer, W. E. Watson is gen. plant mgr.; Sterling Skinner, chief engineer; H. R. Dopp, purchas-

ing agent; H. E. Tower, asst. secy-controller; E. J. Justus, director of research; Gaston J. Bertrand, pres. of Beloit International, C.A., and Dr. Fré, president of the Italian company.

## Search for Perfect Pick Tester

is international in scope. German, Dutch, U.S. machines to be tested.

Paper's competitive position vs. TV and metals at stake

● An international cooperative effort in research to find a perfect pick tester has been launched.

This is recognized as one of the important instrument needs of this industry to help the coated paper and paperboard field, for example, to meet the competition of TV, on the one hand, and plastics, metals and foils on the other. Writing and other paper grades will be tested, too, and should benefit. But the higher press speeds and use of tackier inks are putting greater and greater strains on printing paper and board.

Paper and board face the challenge created in the punch and brilliance of TV and also of the gloss and snap and brilliance that foil, for instance, gives to printing.

Lehigh University, Bethlehem, Pa., because of its success in this field, and in ink rheology and printability, has been selected from among six independent research centers to carry on the search for the ideal pick tester. It is being financed by TAPPI.

Prof. Johannes Albrecht of FOGRA, the German Institute for Research in Graphic Arts, has agreed to cooperate in evaluations with Dr. A. Zettlemoyer, internationally known resident director of the National Printing Ink Research Institute at Lehigh. New Dutch and German machines, particularly, are to be tested, along with American.

### Mills Asked for Samples

Alex Glassman, paper research director, R. R. Donnelley & Sons, Chicago, one of the world's biggest printing houses, is chairman of the project. Serving with him are Dr. Walter W. Roehr, Kimberly-Clark Corp., Neenah, Wis., and Dr. William C. Walker, West Virginia Pulp and Paper Co., Williamsburg, Va. L. K. Burnett, Ohio Boxboard Co., heads paperboard activities. Fred Wegmouth, vice president of Interchemical Corp., is obtain-

### AIM TO PICK AN IDEAL PICK TESTER



Zettlemoyer ..... Fetsko ..... Glassman ..... Roehr ..... Walker

ing assistance of ink makers. Mr. Glassman wrote the article "What is Required in Coated Paper for High Speed Printing," in PULP & PAPER, page 62, April, 1957, issue, which won a national graphic arts award for that year.

Paper mills are asked to send paper samples direct to Miss Jacqueline M. Fetsko, project leader, Lehigh University, Bethlehem, Pa. She is known for contributions on ink, pick strength and paper-ink relationship.

Samples are wanted that have either failed or ran well on particular presses. Also papers either rejected for pick, or not, at the paper mill.

Paper companies are asked to write to Mr. Glassman at the Donnelley plant, 350 East 22nd, Chicago 16, Ill., for data sheets. These are to be used for case histories giving kinds of paper, pulp, presses and inks used, descriptions of failures, results, etc. Comments and criticisms are requested by Mr. Glassman, with copies to Drs. Roehr and Walker.

Cooperating in the study are Consolidated Water Power & Paper Co., Crown Zellerbach, International Paper, Kimberly-Clark, Mead Corp., Oxford Paper, St. Regis and West Virginia P & P, among others.

A major objective is to tie down ink, press and paper or board by use of an

instrument to predict pick. The project is expected to increase knowledge of surface strength of paper and board. Pick resistance is the ability of board to withstand the tack of printing ink or blanket during separation of paper from plate or blanket during printing. Pick failures may involve ruptured stock, removed coating, pulled-out fibers or complete removal, lifting or blistering. Experiments will be in laboratory and pressroom.

Stichting Instituut Voor Grafische Techniek T.N.O., Amsterdam, Holland (which is Institute for Graphic Arts of Amsterdam) has provided one of the principal instruments to be evaluated, the I.G.T. Printability Tester, available from K. E. Saunders Agencies, 141-30 Pershing Crescent 1A, Jamaica, L.I., N.Y. Dr. Albrecht will evaluate the new German FOGRA machine on selected samples supplied by the committee.

The John Waldron Corp. (New Brunswick, N. J. Pick Tester, the Lithographic Technical Foundation (Chicago) Pick Tester, the Hercules-Brookfield Print Tester (developed by Hercules Powder Co., made by Brookfield Engineering Co., Stoughton, Mass.), and other pick testers developed by the Institute of Paper Chemistry, Kimberly-Clark Corp., and S. D. Warren Co., are to be used.





**NEW OFFICERS ELECTED FOR PACIFIC TAPPI.** Retiring chairman Dr. NORMAN LEA (left), Scott Paper Co., Everett, officially passes gavel to his successor PAUL BILLINGTON, Weyerhaeuser Tbr. Co. Pulp Research, Longview; NORVAL MAGNUSSEN (center left), Puget Sound Pulp & Tbr. Co., Bellingham, new vice chairman; ROBERT SMYTHE (center right), of Ray Smythe Co., Portland, re-elected secretary-treasurer.



**PACIFIC COAST APPMSA SPEAKERS** (l to r) Dr. T. J. SCHOCH, Corn Products Refining Co., Argo, Ill., delves into molecular architecture to explain starch behavior; GLEN D. KING, Crown Zellerbach Corp., West Linn, session chairman; RICHARD G. CARTER, CZ West Linn, on improving converting operations.

## Sawdust Pulp is Success in Canada

Powell River's results with new raw material disclosed at international meeting. Properties of starch also discussed

● New horizons in forest utilization and the industry's economics are discernible prospects through the use of sawdust as raw material for pulping. It can be satisfactorily pulped in disc refiners to resemble groundwood.

Trials by Powell River Co. Ltd. "leave no doubt that production of groundwood type pulp from sawdust is practicable." Results:

1. Without pretreatment power consumption is about the same as for groundwood.
2. The pulp would be slightly weaker than groundwood.
3. Deciding on pretreatment largely depends on how much a mill can afford to pay for improving pulp strength.
4. Semichemical cooking results in strong pulp at the expense of lower

yields, increased chemical costs and considerably higher investment.

Presteaming would require little additional cost and might be quite attractive if conditions can be found under which there is no brightness loss.

These findings were reported by D. L. Stewart, of Powell River Co. Ltd., Powell River, B.C., at the Western International Meeting of Pulp & Paper Industry in Victoria. The participant groups were Pacific Coast Branch, Technical Section, Canadian Pulp & Paper Assn.—the host organization; Pacific Section, TAPPI; and Pacific Coast Branch, American Pulp & Paper Mill Supts. Assn.

In addition to investigating the pulping properties of sawdust, Mr. Stewart analyzed the economics in-

involved in utilizing this industrial by-product material normally considered a "cheap fuel." His findings indicate that Bunker C oil costing \$5.50 provides as much boiler heat as is obtained from a ton (air dry) of sawdust. "Even at depressed log prices," he points out, "a ton (dry weight) of grinder blocks costs about \$20 as logs in the water and a few more dollars must be added for conversion costs. The manufacture of an acceptable pulp from sawdust would therefore be economically attractive."

Exploratory test work was carried on with a laboratory-scale refiner and followed up by short runs at Bauer Bros. laboratory on a commercial-size refiner. Sawdust consisted of material resulting from cutting grinder blocks, sawing lumber cants, and chip fines,



**CANADIAN PROGRAM PARTICIPANTS** (l to r) D. D. FORSYTHE, research physicist, Powell River Award Paper winner; C. R. JOHNSON, Westminster Paper Co. Ltd., tells of automatic water filtration system using save-all type equipment; Dr. JOHN L. KEAYS, supt. of research and development at Powell River Co., presided over Canadian session and was elected chairman of CPPA coast technical section for coming year; D. J. ROWSE, Columbia Cellulose Ltd., reports efficiencies of Flakt dryers; D. L. STEWART, Powell River, on mechanical pulp from sawdust.



**PACIFIC TAPPI SPEAKERS** (seated l to r) Weyerhaeuser Timber Co. Pulp Div.'s OLIVER P. MORGAN, Springfield, on mesh entrainment separators; PAUL S. BILLINGTON, Longview, presiding; Dr. JOHN M. McEWEN, Everett, on uniform strength testing of pulp; (standing) Dr. A. E. MARKHAM, Puget Sound Pulp & Timber Co., improvements on measuring pH of sulfite cooks; E. G. GUETLIN, Weyerhaeuser Kraft, Everett, pulp strength testing; V. E. CLARK, Scott Paper Co., Everett, accounting methods aiding control and production.

the species chiefly Western hemlock, but including spruce and fir. The commercial refining equipment consisted of a 36-in. Bauer 400 double-disc refiner, driven by two 150-hp motors, and a 6-in. Centricleaner. Sawdust was used (1) untreated, (2) soaked overnight in 5% sodium sulfite solution at 85° F., and (3) impregnated with 5% sulfite solution for 30 min. at 100 psig and 85° F.

#### Findings of Sawdust Trials

In one pass through Centricleaner resultant pulps were reasonably free of coarse material; power consumption close to conventional groundwood; strength equal in tear, less in burst and tensile (equal to 10 as compared to 13.5 for groundwood); brightness believed equal to groundwood.

The effect on paper machine operation and finished newsprint strength from adding a small percentage of sawdust pulp to groundwood has not yet been ascertained, but Mr. Stewart believes the strength reduction would be negligible. Calculations indicate 7 lbs. of additional sulfite would be required per each 100 lbs. of sawdust pulp used.

The refined sawdust is apparently not particularly short-fibered, and fiber length distribution "is surprisingly similar to that of groundwood."

#### Special Properties in Starch

Fundamental studies of starches has not only revealed "whys" of their behavior but is disclosing ways of "building in" desired functional characteristics. Dr. T. J. Schoch, director of basic starch research Corn Products Refining Co., reported on these practical aspects of starch chemistry which are being disclosed by research.

The molecular architecture of starch granules has a major influence on the extent of swelling and solubilization in hot water, according to Dr. Schoch. Root starches are loosely organized and hence swell freely but the more tightly bonded cereal starches resist swelling and solubilization. Properties can be altered by chemical treatments, such as hydrolysis, oxidation, etherification, dextrinization and cross-bonding.

#### Evaporator Function Improved

By installing stainless steel-mesh filter pads as internal separators of a 5-effect evaporator, condensate conductivity was reduced to below that of fresh water, coloring in condensate was eliminated, and capacity of the recovery unit increased by about 5%. Oliver P. Morgan, chief chemist, Weyerhaeuser Timber Co. Pulp Div.,

Springfield, Ore., reported obtaining these results in all five effects of the Springfield plant's least efficient evaporator.

Before installing the separators some improvement had been made in the second (of three) evaporator by enlarging the drain lines and recycling liquor to maintain solids content above 16%. These factors provided a 70% reduction in conductivity but was still higher than in the other two evaporators.

Trial placement of a steel-mesh filter pad in No. 3 effect in July 1957 produced a marked improvement when compared to previous results. Condensate conductivity dropped and color of the condensate color changed from "straw-to-brown to water white." Pressure drop across the pad decreased from the former 3.5-in. (water) to 0.1-in. and there was no indication of plugging. Based on the decisive results of the trial, all internal separators of the remaining effects of No. 2 evaporator were replaced with filter pads.

#### New Test Procedure for Pulp

To facilitate predicting how pulp will perform on a paper machine, Pulp Div., Weyerhaeuser Timber Co. adapted the Valley beater strength evaluation for this purpose. Both the company and its customers have long used the Valley beater method, so it was decided to build onto this experience to make the tests "as valuable as possible."

The company developed its procedure on the concept that (1) pulps of equal strength should test the same at different times or in different beaters and (2) when pulps are not the same strength the difference should show in the tests.

The system, jointly reported by John M. McEwen, technical director,

and Ernest G. Guetlin, project chemist, both of the Weyerhaeuser kraft mill, Everett, Wash., is aimed at eliminating testing variables other than those relating to strength.

A prime factor concerns the use of a calibration pulp as a means of accounting for variations in testing equipment. A calibration pulp should be (1) similar to those on which routine tests are made and (2) aged before using to eliminate strength recession factors.

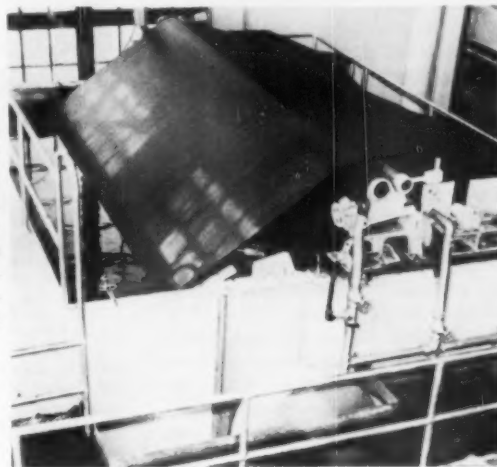
Dr. McEwen says, "Once the strength values have been established for a calibration pulp, it can be used to compare different sets of testing equipment or the same equipment from time to time. The information can be put to use in two ways: The equipment or procedure can be changed to give the accepted value; routine results can be corrected by a factor relating the current value on calibration pulp to the accepted value."

The accepted value for a calibration pulp is established after each company mill has tested this pulp in all beaters. A new calibration pulp is carefully compared to the old calibration pulp in all beaters before establishing accepted values of the new. If calibration values differ a great deal from the accepted values, changes are made in the equipment or procedure.

#### Water Filtering in Limited Space

A completely automatic filtration plant of 2,500 gpm capacity is removing abrasive silt from river water for use in mill processes at Westminster Paper Co., Ltd., New Westminster, B.C. The installation is housed, with auxiliaries, in a 2-story 26 by 54-ft. building immediately adjacent to the mill. It uses two save-all type Waco filters in which raw water

**SUBJECT OF DISCUSSION** . . . one of papers at Victoria International meeting, described in this article, discusses operation of this Waco Filter at Westminster Paper Co. Sherbrooke Machineries Ltd. built the filter.



passes through a continuous disposable pulp mat capturing the foreign particles.

C. R. Johnson, Westminster project engineer, says the initial 6-week operation made it evident the installation "is capable of producing all the conditions for which it was installed."

Each Waco unit has a vat in which a 6½ by 14-ft. cylinder rotates while nearly submerged in untreated water. Pre-coat stock flowing onto a 50-mesh traveling wire forms a fiber mat—similar to 46-lb. basis weight mats formed on Fourdrinier wire—which advances onto the cylinder. Water in the vat is drawn through mat-wire-cylinder. The wire remains in contact with the cylinder throughout about 300 degrees then passes over a couch roll where the solids-laden mat is doctored off. After passing through a cleaning shower, the wire returns to the forming roll and there receives a new filter pulp mat to be carried around the cylinder. Filtrate from the Waco units discharges into a collection system for mill usage.

#### To Modernize Converting

New converting equipment now on the market, or to be introduced shortly, will have extensive influence on production methods and costs, according to Richard G. Carter, industrial engineering dept. of Crown Z West Linn division. He said high speed equipment which combines production functions tends to squeeze out older equipment and completely new in-plant systems are needed. "Handling to and from the machine must be considered. Operators must be trained. Scheduling may be affected."

Converting developments cited as having considerable promise include: Shear perforator for toilet tissue, press bander for multifold towels, new high-speed bag machines of double the previous production rates, improved continuous cutter-layboys, trimmers with continuous backloading, cantilever spear stackers, automatic peripheral carton taping.

#### Accounting Aids

Increasing speed of office machines and broadening functions of the accounting department make it all the more important that the accountant be familiar with developments within the organization, according to Val E. Clark, chief accountant of Scott Paper Co., Everett. He visualizes a successful operation as a pyramid—production management at the top, technical control and accounting forming the base. In such relationship it's important that the accountant spend enough

time in both the laboratory and production phases to keep continuously informed.

#### International Awards

Pacific Coast div. of Supts. Assn. is increasing the scope of its scholarship award program. This decision, finalized at the Tri-Way meeting in Victoria, extends scholarships to include Univ. of B. C.

The association, according to secy.-treas. R. Burke Morden, Morden Machines Co., set up annual \$150 scholarships three years ago at Univ. of Wash. and Ore. State College. With the recent inclusion of Univ. of B. C. in the program, the individual scholarships were increased to \$225 per year. The recipients, chemical engineering undergraduate students, are selected by the respective schools.

#### Honorary Peddler

International Peddlers initiated John Guthrie, mill mgr., Columbia Cellulose Co., Ltd., Prince Rupert, as honorary member at Wake-Up breakfast. D. A. Livingston, mgr. pulp products div. ESCO Ltd. and pres. of IBMP Waiting Room No. 6, Vancouver, and S. L. Mackay, Engineering & Machinery Ltd., master of ceremonies, participated.



Boesinger



Estebo

#### Moves in Mead Board Mills

Important moves of operating personnel in Mead paperboard mills were made by The Mead Corp. J. O. Boesinger becomes assistant mgr. of the Sylva, N. C., division. Donald G. Estebo is promoted from general supt. at Harriman, Tenn., to production mgr. at Lynchburg, Va. Leslie K. Martin, now assistant general supt. at Sylva, succeeds Mr. Estebo as general supt. at Harriman.

Mr. Boesinger has been division mgr. at Nashville, Tenn. His appointment to the new post of assistant mgr. at the larger paperboard plant at Sylva will enable Division Mgr. Paul Ellis to devote more time to his further responsibility as production mgr. of Mead corrugating board mills.

A native of New York City and graduate of New York State College of Forestry, Mr. Boesinger has been with Mead since 1946, after five years of military service, and worked as pulp mill supt. and chemist at Harriman before promotion to manager at Nashville in 1951. Mr. Estebo joined Mead at Escanaba, Mich., in 1947, after graduating from Minnesota U. From

#### Engineering Conference Delegates To Tour Coast Mills

Mill visits have been arranged for delegates to the 13th TAPPI Engineering Conference, Portland, Ore., July 28 through Aug. 1. The five mills to be visited are divided into three tours, each leaving from Portland's Multnomah hotel, Friday, Aug. 1. Ladies should wear low heeled shoes.

Tour "A," leaving at 8:15 a.m., will visit Longview Fibre Co., and Weyerhaeuser Pulp Division, Longview, Wash. The Longview Fibre Company is an integrated kraft mill with a semichemical pulping operation. Weyerhaeuser is a combined sulfite and kraft mill with semichemical pulping.

Tour "B," which leaves at 8:30 a.m., takes in Crown Zellerbach Corp., Camas, Wash., producers of kraft and sulfite papers, with an extensive converting operation.

Tour "C," leaving at 8:45 a.m., will view the Crown Zellerbach mill in West Linn, Ore. and Publishers' Paper Co., Oregon City. These mills make groundwood and sulfite specialties, newsprint and coated and uncoated book.

1952-56, he was at Wheelwright Division, No. Leominster, Mass., finally in the dual assignment of plant engineer and personnel mgr. He was promoted to general supt. at Harriman in 1956. He was born in St. Paul, Minn.



Boyce



Dickerman

#### Promotions at Consolidated

Ira F. Boyce was elected a vice pres. of Consolidated Water Power & Paper Co., Wisconsin Rapids, Wis. He is a director and was formerly asst. to the pres. He joined the firm in 1942.

Gilbert K. Dickerman has been promoted to the new position, director of corporate planning and development of Consolidated Water Power & Paper Co., announces Stanton W. Mead, president. His appointment and other organizational changes will place increased emphasis on research, technology, and long-range planning which will affect decisions on diversification suitable for the companies, Mr. Mead stated. Mr. Dickerman joined Consolidated in 1927 and developed its early technical program. He was technical director since 1937.





OFF TO A HEAD START with good jobs in the industry. They are . . .

## Products of The Maine Plan

● The exuberant young men shown above are both an encouragement and inspiration. To members of the University of Maine's Pulp and Paper Foundation, they are an encouragement to continue supporting the five-year pulp and paper curriculum. And to students belabored with studies and indecision as to career choice, their success is an inspiration.

These men successfully completed the five-year course and are now gainfully employed either in the paper industry or an allied field.

The University of Maine's pulp and paper curriculum began in 1913. It has been called the cradle of the industry's technical training, says Prof. Lyle Jenness, because it was the first school of its kind to prepare men for careers in the pulp and paper industry.

The plan combines a regular b.s. degree program in engineering with a course in pulp and paper technology. Graduates are equipped to enter the engineering profession and to handle responsible positions in the industry.

The plan also provides a five-year program which prepares students for management positions in the paper industry. This combination of engineering, technology and business training gives students the background and qualifications necessary to enter any branch of paper or allied industries.

Indicative of industry's interest in the Foundation is the presence of more than 120 industry leaders at the University's annual Open House and Research Days. These included five paper company presidents and presidents of three major allied companies.



SEEDS ARE PLANTED for better understanding in this . . .

## Unrehearsed Give and Take Session

Students tell industry their problems and ask advice. Management tells students its requirements.

This is one of the most popular sessions held during the Open House and Research Days at the University of Maine. No holds (or questions) are barred and no hedging on answers permitted. The result: A frank, down-

to-earth talk.

The industry panel included George Olmsted, president, S. D. Warren Co.; Arthur Armstrong, director of personnel, Scott Paper Co.; Warren F. Daniell, chief engineer, Great

Northern Paper Co.; Frederic C. Goodwill, resident manager, St. Regis Paper Co.'s, Bucksport, Maine mill; Harry C. Moore, president, Beloit Iron Works; Ted F. Spear, vice president for public relations, Oxford Paper Co.; Robert F. Vokes, administrative vice president, The Black-Clawson Co.; and Wayne G. Davis, vice president, sales, Albany Felt Co.

Highlights of the give and take follow (M: management; S: student):  
M: "A student has to sell himself to our company. His grades are looked at very closely. Good men are still hard to find; especially technical men, engineers and research men."

S: "How is the industry doing?"

M: "It's anybody's guess—off about 3% to 5%, tonnagewise. Problem in the industry is overproduction. Mills accustomed to running seven days are doing six; mills used to six days are down to five, etc. It depends upon who your customer is. If you sell to the auto industry, business will be off. The stress is on quality and service."

"The need is for more efficiency at lower cost. Management is more receptive to quality. Frill spending is over."

"The year 1959 will be better and 1960 will be still better, but it will be a longer time than most people admit before mills operate as they would like. The fourth quarter of 1958 will begin to improve."

S: "Is a training program for a graduate a frill?"

M: "Definitely not. But under present conditions, where efficiency is of paramount importance, management will give closer scrutiny to ideas submitted. They'll have to be better to get appropriations. Savings and quality features will get the most attention."

"We are spending more money for higher quality and lower costs, not expansion."

A machinery manufacturer: "Present-day psychology is to delay expenditures for cutting costs in line with an economy program. This is shortsighted. There are many reasons why today is an ideal time to spend money on improvements."

M: "Our sales force is not interested in increasing production but in quality."

S: "What are the long range effects plastics will have upon paper?"

M: "When plastic material becomes cheaper than cellulose, then plastic will be used. We believe our company should be in the plastic field since we are selling a low cost product."

S: "Should a student have a business background as well as technical?"

M: "The broader you are the better you will be."

M: "Very important. You should have the humanities and social subjects."

(This was a controversial question. Some said such subjects were necessary, that technical knowledge could be picked up later. An engineer said technical education should be first, that the arts and English could be picked up after formal education had ended. One English major graduate said it is better to have a combination of both.)

S: "What is the most significant thing a graduate entering industry lacks?"

M: "Report writing is the weakest."

M: "Weakness in economics."

M: "I've been out of college 35 years and engineers couldn't write reports then and can't now."

M: "We must develop people who can be both liberal and practical. That we can't do with only a trade school."

M: "It is surprising how many students can't spell. That shows we are not getting enough liberal arts education."



U. OF M. FOUNDATION EXECUTIVE COMMITTEE—(Front row l to r) Henry W. Fales, vice pres., St. Croix Paper Co., secretary; M. C. McDonald, president, Great Northern Paper Co., vice president; J. L. Ober, retired vice pres. Scott Paper Co., president; Frederic A. Soderberg, vice pres., F. C. Huyck and Sons, vice president; Ralph A. Wilkins, vice pres., Bird and Son, Inc., treasurer; (back row) George Olmsted, Jr., pres., S. D. Warren, Boston; Philip S. Bolton, asst. to gen. mgr. for research, engr., and dev., Continental Can Co., Inc., Robert Gair Paper Products Group; Guy Durgin, Univ. of Maine; Dick D. Uong, vice pres., Fitchburg Paper Co.; and Prof. Lyle Jenness, Univ. of Maine

## Predicts Rise for Board

Consumption in all grades will show quarter to quarter gains, NPA is told. See real challenge from other materials

• "The consumption of all grades of paperboard is expected to show quarter to quarter gains through the coming 12 months," Dr. Howard T. Hovde, vice president, Econometric Institute of New York told the nation's paperboard makers meeting in Santa Barbara, Calif., in May.

Dr. Hovde based these observations on the fact that the present rate of inventory liquidation probably cannot be sustained beyond the third quarter of this year and new orders for capital goods and consumer goods except automotive firmed during April and new orders for construction materials turned upwards. He pointed out that the heaviest decline in paperboard production during the first quarter of 1958 was in containerboard. Folding boxboard, special food board and other boxboard production during the first quarter of 1958 increased over the first quarter of 1957. Most of these grades are used to package consumer perishable goods.

"New orders for paperboard at the manufacturing level may remain below the consumption levels until the fourth quarter of this year," he said, "but after that time manufacturers will probably have to meet a higher level of ultimate consumer demand as well as for inventory building."

### Kennedy Warns of Competition

Many paperboard markets are "prime targets" of other industries, using other types of materials, President John R. Kennedy of the National Paperboard Assn. warned his associates at the annual spring meeting. He also is president of Federal Paper Board Co.

"The paperboard industry can benefit from true leadership in the competition with other industries," he said. "We do not operate in a vacuum—our competition with other products and forms of packaging is one of the most real challenges we face. The answer to competition of this type does not lie solely in price but in the realm of increased service and product or package advantages. Time and again, paperboard customers have increased their sales—and their purchases through improved paperboard products or packaging."

He said there are many fields where we have barely scratched the surface in having paperboard supplant less flexible and heavier packaging.

Discussing prices, Mr. Kennedy noted that paperboard prices went up only 1/10th of 1% from June 1956 to June 1957 while all paper except newsprint went up 4.7% and all manufactured goods about 3%.



Kennedy . . . . . Ticoulat . . . . . Hovde

"We do not have an inflated price structure or any cushion to fall back on, and our costs have increased substantially," he said.

He observed that in the first quarter of 1958 as compared with a like period in 1957, the entire paper industry in the U. S. A. was down only 16% while steel was down 67%, machinery metal products and rubber 47%, and textiles, coal, chemicals and construction materials, 23 to 32%.

### Coast Outstrips National Figures

Paperboard production on the West Coast has shown an increase of 3% in production through the end of April over the same period last year as compared to the national picture which is down 5%. G. J. Ticoulat, senior vice president, Crown Zellerbach Corp., told the association.

He attributed this to high population increases in the area, expansion of the industry on the West Coast, rapid development of new uses for paperboard and greater industrialization of the Pacific Coast states.



Ritter ..... Lawrence ..... Morgan ..... Lantier

#### Sales Force for E-Z Pulp

Responsible for sales of E-Z Pulp, bleached kraft market pulp made at Gulf States' new mill at Demopolis is headed up by Fred Ritter, sales manager for all products of Gulf States Paper Corp., who bases in Tuscaloosa, Ala., company headquarters. In the field for pulp sales are Walter Lawrence, New England regional sales mgr., 230 Park Ave., New York City; James Morgan, Western regional sales mgr., Indianapolis, Ind.; and Fred Lantier, Eastern (excluding New England) sales mgr., Huntington, N.Y. Mr. Lawrence is a veteran of market pulp sales, formerly having been with Soundview Pulp Co. (now merged with Scott). Mr. Morgan, who was in building material sales, and Mr. Lantier are newcomers with the Gulf States organization.



Webberley ..... Kropp ..... Boylon ..... Burdon

#### Service Salute at Crown Z Camas Plant

Ed Webberley, beater room supt., and Christine Kropp, executive secretary, receive congratulations from Res. Mgr. F. O. Boylon. H. E. Burdon (far right), who recently retired as office mgr., returned for occasion and received 45-yr. award. Over 100 men and women received recognition for 25-45 yrs. service in Crown organization.

#### Golden Gate TAPPI Hears About "New Dimension" Production

Crown Zellerbach's "new dimension" in production-marketing involving manufacture of paper products at marketing centers was featured in Antioch, Calif., spring meeting of the Golden Gate District, Pacific TAPPI. Dudley F. Church, CZ Antioch tech. supervisor, covered production of towel and tissue on "little machines." Fred Helversen, CZ chief industrial engineer, described moving pulp from Elk Falls, B.C., and its manufacture

into pulp at Antioch mill.

New officers of the Golden Gate district are, Wayne H. Kuefner, quality control director, Flintkote, Co., chairman; George E. Martin, tech. director, paper-board div., Fibreboard Paper Products, vice chairman; H. A. Harvey, Penick & Ford, secy.-treas. Walter R. Brandt, General Dyestuff, is an executive board member. Dr. Jack S. Barton, director of packaging research and development for CZ Western-Waxide div., completed his tour as chairman of the Golden Gate district.



Church ..... Barton ..... Helversen



Harvey ..... Martin ..... Kuefner ..... Brandt



Foley ..... Graham ..... Patrick

#### Awards by Powell River Co.

M. J. Foley, president, Powell River Co. (left) presents Walter Patrick with a gold watch emblematic of 25 years' service with the British Columbia paper organization, while John Graham, assistant purchasing agent, another 25-year man, looks on. Others similarly honored were Ross Black, Thomas Burke, Jr., Arthur Button, Walter Cavanagh, Dave Davidson, Stanley Lloyd, Robert Southcott and William Tyler. Powell River has had 467 25-year employees, of which 284 are still active.

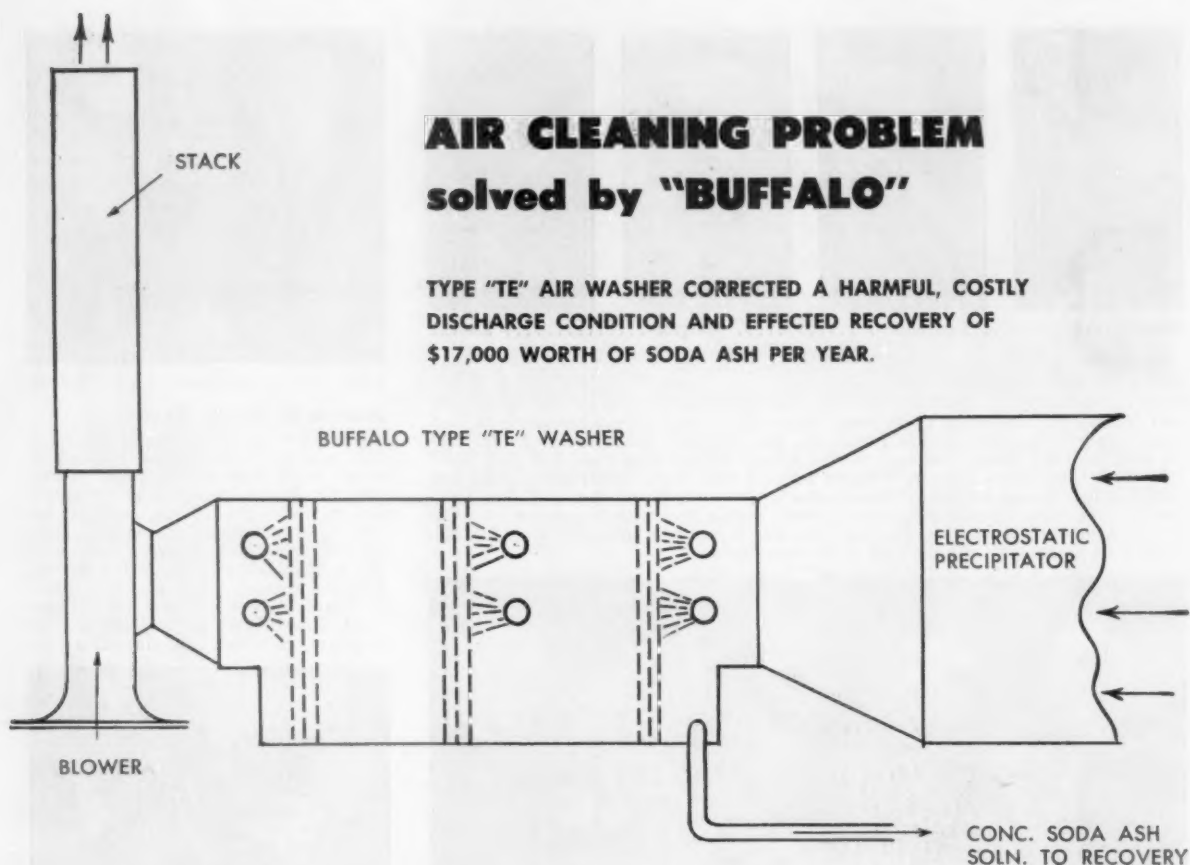


Rice ..... Laughlin ..... McLaren

#### First Awards at Big Island

Ninety-four employees with 2,468 years of service among them were honored recently at the first service awards ceremony in the long history of the Big Island, Va., mill of Owens-Illinois Glass Co. Topping employees who received gold watches and service pins were CARL A. RICE, with 44 years; CURTIS DAWSON and MINNIE PAGE, with 43 each. HUGH C. LAUGHLIN, executive v.p. of Owens-Illinois and president of its Mill Division, and C. G. McLAREN, v.p. and gen. mgr. of the division, were among Owens-Illinois officials who attended. The Big Island mill was a producer of pulp until 1889 when its name was changed from Alleghany Paper Mill Co., to Lynchburg Pulp and Paper Co., and it had other names in later years. It was first mill to make groundwood from southern pine.





## AIR CLEANING PROBLEM solved by "BUFFALO"

TYPE "TE" AIR WASHER CORRECTED A HARMFUL, COSTLY DISCHARGE CONDITION AND EFFECTED RECOVERY OF \$17,000 WORTH OF SODA ASH PER YEAR.

### PROBLEM

A paper firm was suffering poor community relations due to a soda ash discharge from its recovery plant. The ash, flaking off the collecting plates of its large electro-static precipitator, was damaging auto finishes.

### SOLUTION

Installation of a "Buffalo" 84,000 cfm Type "TE" Washer as shown. Washer is all-stainless construction, with two wet scrubbing stages and one eliminator stage. Scrubbing water was recirculated thru spray nozzles at 20 psi until soda ash became concentrated enough for efficient collection.

### RESULTS

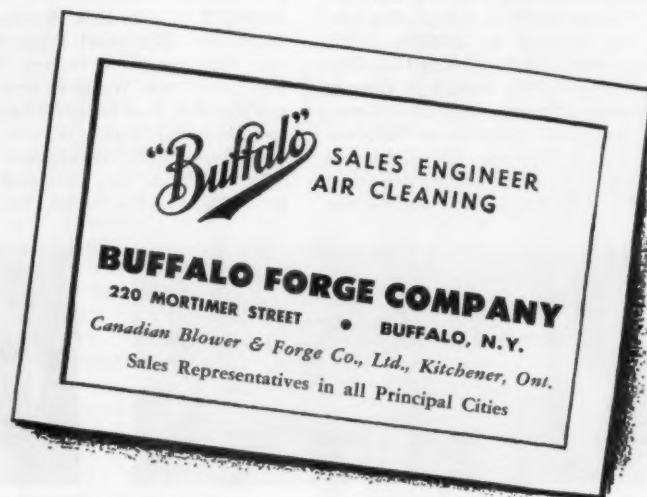
Nuisance to neighbors was eliminated. Inlet soda ash loadings ranging from .13 to .43 grains/cu. ft. were reduced to between .02 and .09 grains at outlet for a collection efficiency average of 88.2%. 500 tons of soda ash are recovered each year in continuous service between annual maintenance shutdowns.

### WHAT'S YOUR AIR CLEANING PROBLEM?

Whatever the contaminant, whatever the removal problem, chances are excellent that a "Buffalo" Unit is controlling a similar condition in your industry to complete satisfaction. Write for details today — take advantage of our long experience in industrial air cleaning.



VENTILATING	AIR CLEANING	AIR TEMPERING
INDUCED DRAFT	EXHAUSTING	FORCED DRAFT
COOLING	HEATING	PRESSURE BLOWING



The Yarway Impulse\* steam trap  
is the only steam trap that continually  
senses condensate conditions  
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and discharges this condensate  
as soon as it forms.

Result — higher temperatures,  
steadier temperatures,  
peak operation of  
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\* A COMPLETE LINE OF STEAM TRAPS, ALL OPERATING  
ON A PROVEN THERMODYNAMIC PRINCIPLE.



Actual size,  
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# AMERICAN (DISC-TYPE) SAVEALL



... at Fraser Paper, Limited

*Handles 1570 GPM of White Water  
and Recovers 80% of the Titanium Dioxide*

This 9 ft. dia. by 12 disc American Saveall was recently installed at Fraser Paper, Limited, Madawaska, Maine, to obtain improved recovery of pulp fibers and fillers from the white water from the No. 6 paper machine, currently producing 22½ pound catalog paper. The latest of the five Savealls installed at Fraser, this unit requires only 12 ft. by 23 ft. of floor space. Operating at a recovery efficiency of 90%, this Saveall recovers 11 TPD of valuable fiber and 80% of the Titanium Dioxide.

American (Disc-Type) Savealls are available in two diameters—7 and 9 feet. From 2 to 8 discs are available in the 7 ft. dia. units and from 4 to 12 discs in the 9 ft. dia. units.

The American (Disc-Type) Saveall combines the largest filtration area in the smallest floor space of *any* saveall available in the world today.

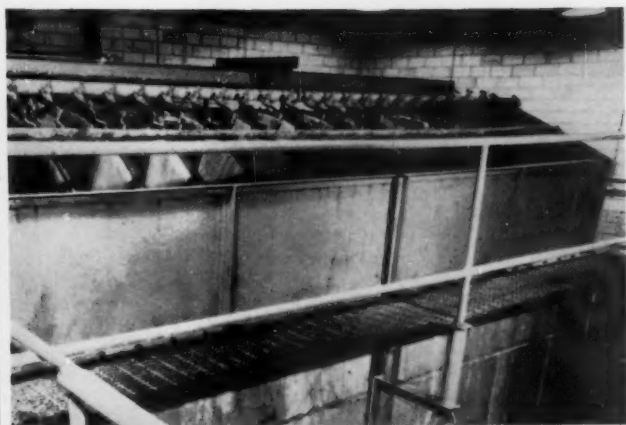
For additional information on the American Disc-Type Saveall, write for Bulletin No. 701-R, Dorr-Oliver Incorporated, Stamford, Connecticut.

American—Trademark, Reg. U. S. Pat. Off.

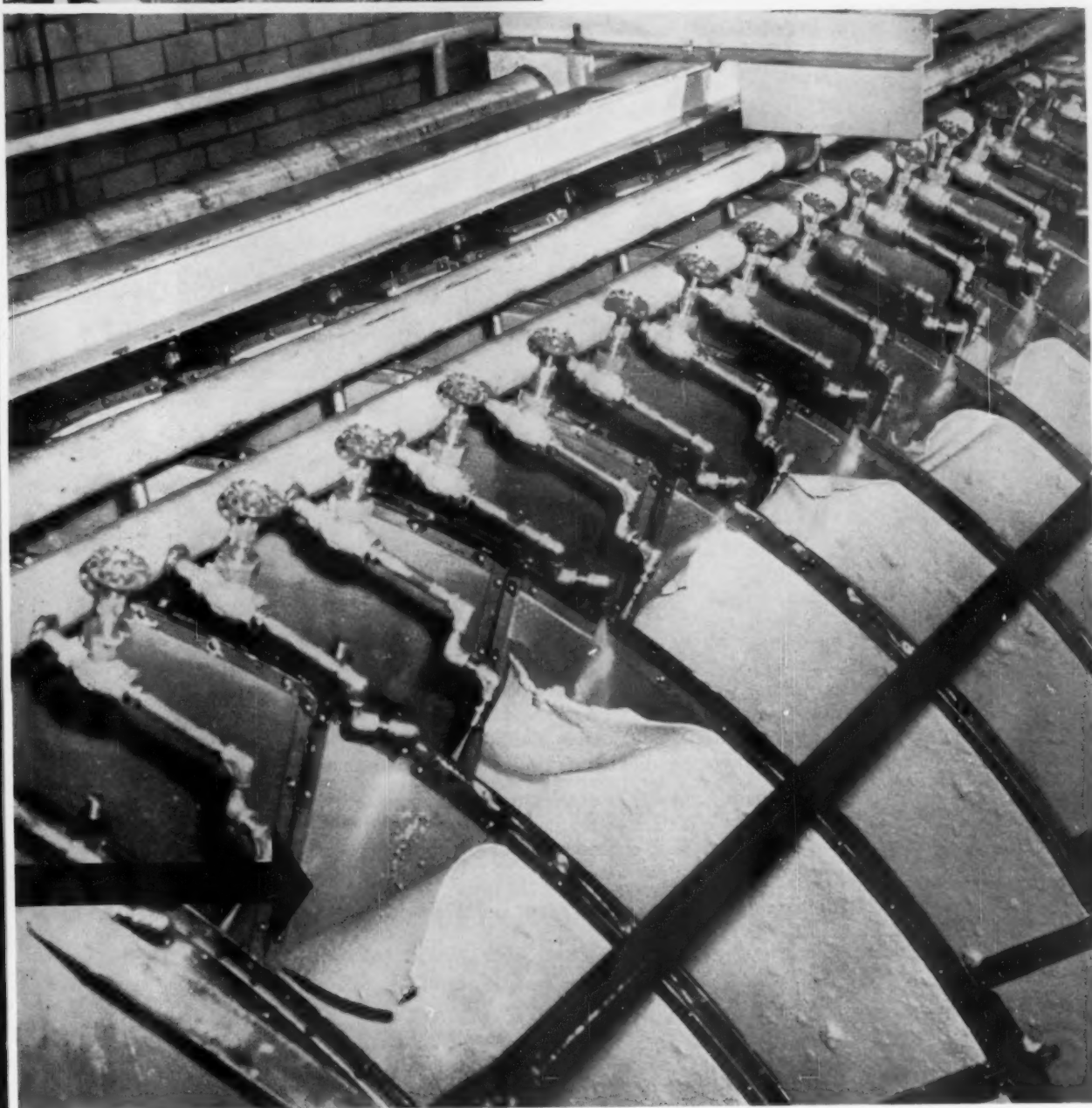
Sluicing jets cut under the sheets and peel them off. The recovered white water lines and valuable fibers are then returned to the stock chest with the sheet, and the clarified white water is available for reuse.

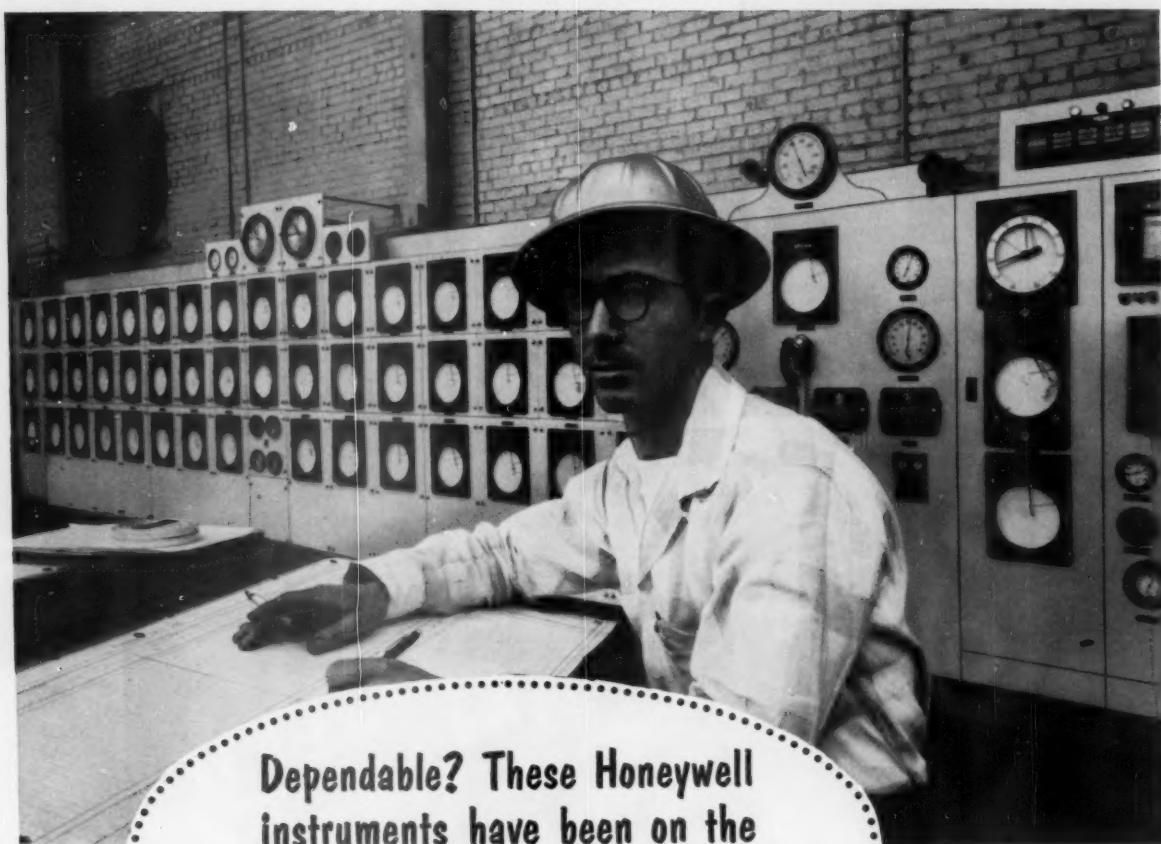






The No. 5 Saveall, 9 ft. dia. x 12 discs, at the Madawaska, Maine mill of Fraser Paper, Limited.





**Dependable? These Honeywell  
instruments have been on the  
job at North Carolina Pulp Co.  
for over 10 years!**

In instruments, dependability is as important as accuracy. You can't gain the full advantage of automatic control without it.

The dependability you can expect of Honeywell instruments is well demonstrated at North Carolina Pulp Company, Plymouth, N.C. Here, many Honeywell instruments have been in operation since 1938, and are still going strong. In the turbine room shown above, some 54 Honeywell recorders, controllers, indicators and flow integrators average well over 10 years of accurate, reliable service, with minimum maintenance.

You can see other examples of the long-term dependability of Honeywell instruments in mills across the country. Profit by it in your own mill. Your Honeywell field engineer can show you how. Call him today. He's as near as your phone.

MINNEAPOLIS-HONEYWELL, Wayne and Windrim Avenues, Philadelphia 44, Pa.

# Honeywell



*First in Control*



## PULP TODAY...PAPER TOMORROW

To produce quality pulp for quality papers, Weyerhaeuser stresses rigid control throughout the mill.

For instance, at our Everett Kraft Pulp Mill, 131 readings, tests and reports are made on process variables every hour.

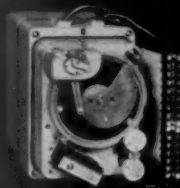
And before it is baled and shipped, the finished pulp is subjected to ten major control studies. No effort is spared to make Weyerhaeuser pulp a consistently pure and uniform product that paper-makers can and do rely on.

# WEYERHAEUSER

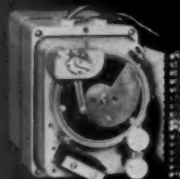




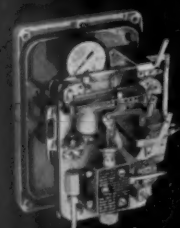
Recording  
Unit for  
Variable 1



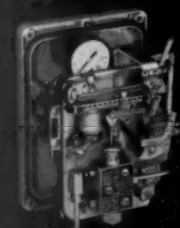
Recording  
Unit for  
Variable 2



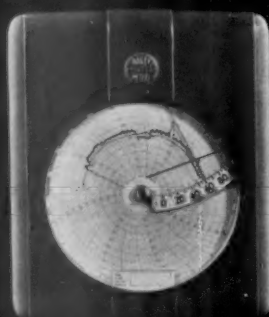
Controlling  
Unit for  
Variable 1



Controlling  
Unit for  
Variable 2



Units added to  
Recorder-Controller  
as needed



## Bailey Recorder is key to "step-by-step" automation

When you are pioneering a new process and don't know all the answers, complete automation is seldom practical. The first step is to identify your variables and measure them. Nothing does this job better than a Bailey Recorder. One instrument can record any four variables that can be converted to electric or pneumatic signals.

Once you get a better understanding of the variables in your process, you will want to add controls and feed back your measurements. Here's where the versatility of the Bailey Recorder comes into play. For the same Bailey instrument you use to record variables is designed to accommodate plug-in control units.

When you use a Bailey Recorder, you can build your instrumentation along with your process. At the start, you use only the plug-in units for recording. Then you add plug-in controls as you see the need for them.

For the complete story of how you can use a Bailey Recorder for step-by-step automation, see your Bailey Engineer.

G-42-1

*Instruments and controls for power and process*

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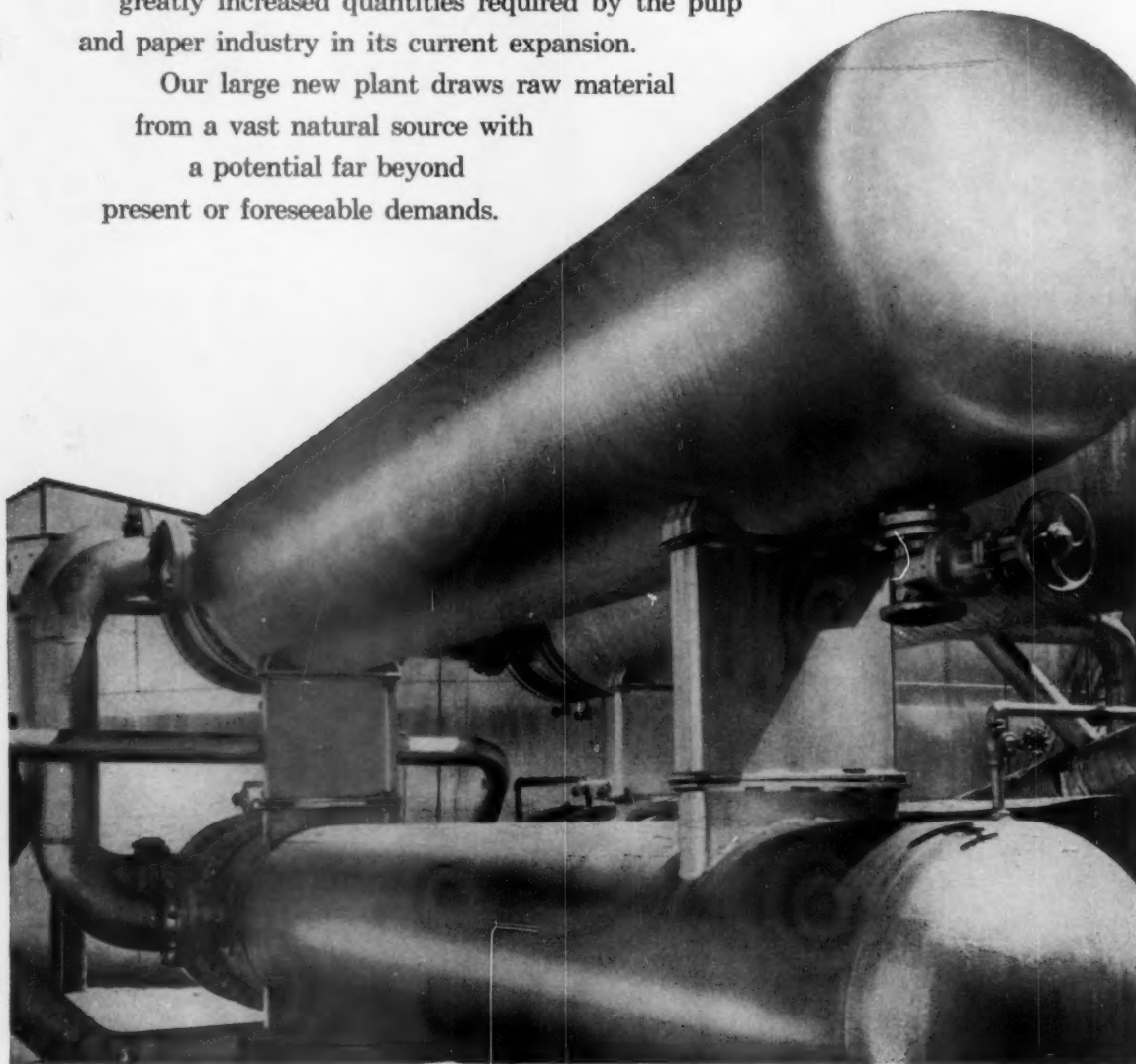


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and we have the production capacity  
to meet your needs**

At West End, salt cake is a prime product... not  
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greatly increased quantities required by the pulp  
and paper industry in its current expansion.

Our large new plant draws raw material  
from a vast natural source with  
a potential far beyond  
present or foreseeable demands.



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Below are photographs of two of the many tests that have been made of Midwest Welding Fittings. The results are *always* the same . . . the seamless pipe to which the fittings are welded invariably bursts. There is never any sign of fitting failure or weakness.

There's good reason for this. We make elbows and tees of inherently stronger metal . . . the Midwest exclusive method of manufacture enables us to maintain greater minimum wall thickness, and to reinforce the fittings at points of greatest stress. For the many other advantages of Midwest Fittings, ask your Midwest distributor or write us for Catalog 54.

**MIDWEST PIPING COMPANY, INC.**

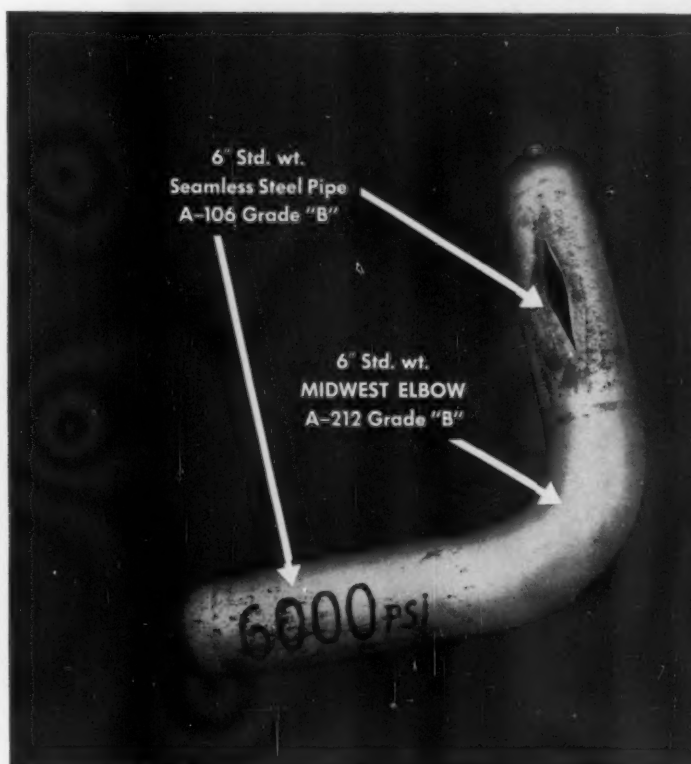
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PLANTS: ST. LOUIS, CLIFTON, N. J. and LOS ANGELES

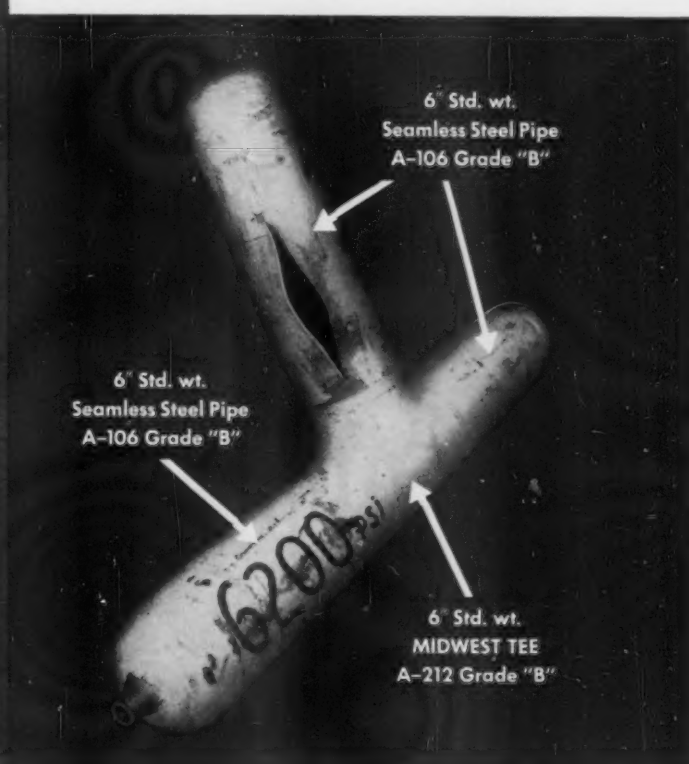
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 CLEVELAND 14—616 ST. CLAIR AVE. • HOUSTON 2—1213 CAPITOL AVE.  
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Typical bursting test of stock Midwest Welding Elbow. As is always the case, failure occurred in the seamless pipe while the elbow was undamaged. Bursting pressure was 6000 psi . . . considerably above the required code minimum for seamless pipe. (Minimum allowable bursting pressure for 6" standard weight A-106 Grade B seamless steel pipe is 4438 psi.)



Bursting test of Midwest Welding Tee taken at random from stock. As always, the failure occurred in the seamless pipe and not in the fitting. The non-shock internal bursting pressure of 6200 psi is well above the code minimum for seamless pipe. (Minimum allowable bursting pressure for 6" standard weight A-106 Grade B seamless steel pipe is 4438 psi.)

7761

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**WELDING FITTINGS IMPROVE PIPING DESIGN AND REDUCE COSTS**

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FOR CHLORINE DIOXIDE BLEACH

**SODA ASH**

OF HIGHEST PURITY

Papermakers know that Trona has what it takes... large, diversified production—uniform, high quality—dependable service. Vast natural resources for highest purity SALT CAKE make American Potash and Chemical Corporation your prime supplier of this essential ingredient for quality kraft production. Basic also in SODIUM CHLORATE. Trona works through and with the Solvay Division of Allied Chemical and Dye Corporation in the marketing of  $\text{NaClO}_2$  for the high-stage chlorine dioxide pulp bleaching process. Completion of our new multi-million dollar electrochemical plant in Aberdeen, Mississippi, will make Trona the largest producer of sodium chlorate in the western hemisphere. American Potash and Chemical Corporation is keeping pace with the paper industry.



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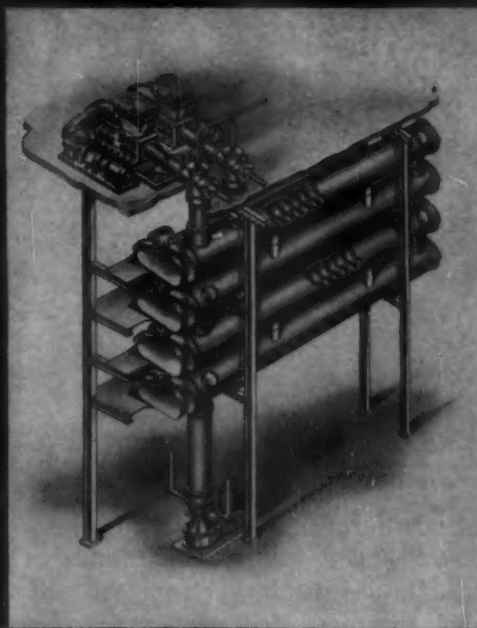
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## CHEMI-PULPERS...

Continuous Digesters produce  
over 1 million tons of pulp every year.

The success of the Chemi-Pulper<sup>®</sup>, the Continuous Digester built by the Pandia Division of The Black-Clawson Company, is reflected in these production figures.

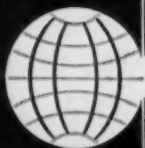
Based on a 350 day operating year, Chemi-Pulpers in operation throughout the world are producing 1,204,000 tons of all kinds of pulp a year. Tonnage of Chemi-Pulpers now being built adds up to 263,200.



Approximately 86% of the operating and "in process of building" capacity is in the United States and Canada.

Get the full Chemi-Pulper story from Pandia—ask for latest Chemi-Pulper Bulletin No. PC-20.

	Present Production	Tonnage Now Being Built
Felt Pulp (Roofing and Flooring Grades)	420,000	17,500
Building Board Pulp	94,500	35,000
Straw Pulp		24,500
Bagasse Pulp	5,250	
Corrugating Board Pulp	519,750	105,000
Bleached Hardwood Neutral Sulphite Pulp	31,500	
High Yield Kraft & Special Pulp	63,000	46,200
Bleached Kraft Pulp	70,000	35,000
Totals	1,204,000	263,200



THE BLACK-CLAWSON COMPANY

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**Nopcosant, Formerly Nopco 1287, an Improved and Economical Pitch-Dispersing Agent**

Nopcosant was formulated primarily to control pitch troubles in mills using sulfite, semichemical or ground-wood pulps. Its use results in longer runs, more uniform paper, improved felt performance, and lower costs—pitch does not deposit on equipment and therefore costly downtime for cleanups is greatly reduced.

Nopcosant is extremely useful, too, in the control of slime, as a size stabilizer, for coating fluidizing, and for improving pigment dispersion in beater stock.

You would find it profitable to have all the facts about Nopcosant. Write or call us today without feeling any obligation. Complete facts on Nopcosant will be sent you by the next mail. Nopco Chemical Company, Harrison, N.J.

**ADVANTAGES OF NOPCOSANT**

- A fine powder of minute, uniform particle size
- Dusts less than any other similar product
- Lightest colored product of its type
- One of the most rapidly dissolving products available
- The most nearly neutral pH in its chemical class

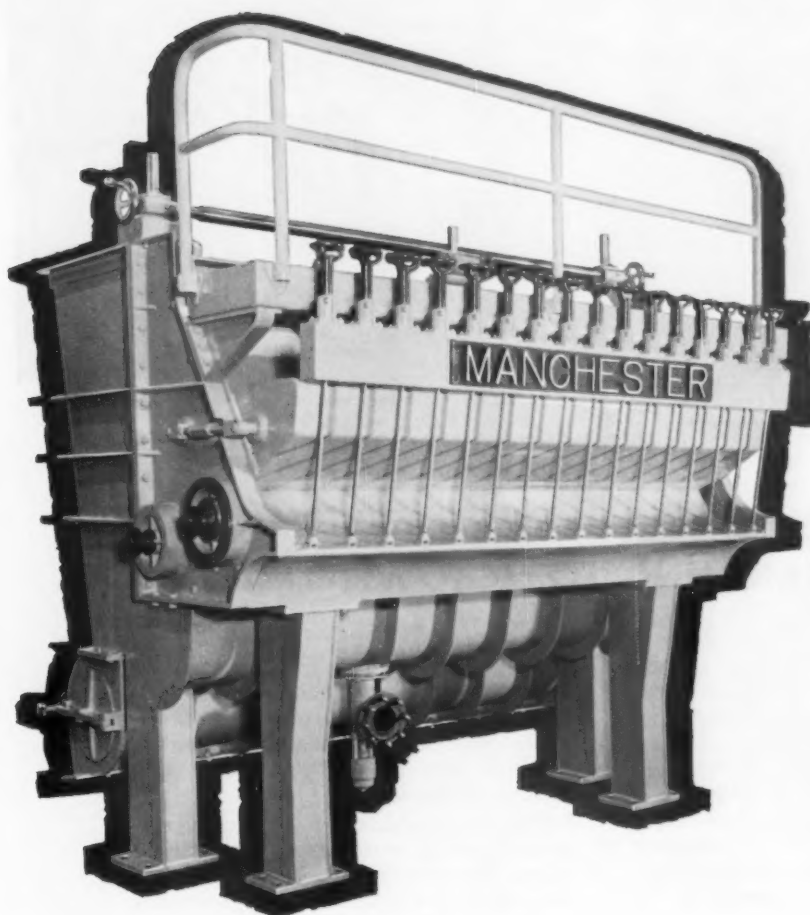


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# HEADBOX BY MANCHESTER

*...for a mill that knows*



**F**LOW CONTROL is a built-in feature of this Manchester headbox.

Deceleration and acceleration of the stock occurs at the proper points, to facilitate air removal and to prevent flocculation.

Other important design details include:

- ▶ Venturi type inlet control valves
- ▶ Whirl chamber—with full diameter clean-out doors
- ▶ Pneumatic dump valve
- ▶ Adjustable rectifier roll in the slice throat
- ▶ Slice opening fitted for individual and master controls
- ▶ Heavily reinforced stainless steel construction throughout

A Manchester headbox will help you produce top quality sheets through every mill run. Write for complete information.

**THE MANCHESTER  
MACHINE COMPANY**

Middletown, Ohio



SPECIALISTS IN  
DESIGNING AND BUILDING  
PAPER MILL MACHINERY

## The Arithmetic of Materials Handling



Fuller Airveyor, powered by diesel-driven blower, conveys wood chips from chip hopper at unloading dock to chip loft over digesters, at the Ocean Falls, British Columbia, paper mill of Crown Zellerbach Canada, Ltd.

### FULLER PNEUMATIC CONVEYING SYSTEM SPEEDS WOOD CHIP HANDLING FOR CROWN ZELLERBACH

Chips are conveyed at 67 tons an hour through 1760 ft. Fuller Airveyor® system at Crown Zellerbach Canada, Ltd. Wood chips for kraft paper production are picked up at dock-side and are sped one-third of a mile through a 16-inch pneumatic pipe line. With few moving parts, the Airveyor requires practically no maintenance. Operation of this air and moisture-tight system is unaffected by exposure to the elements.

Here is a good example of the ease with which a Fuller Airveyor conveys over long distances. The Airveyor is also a highly com-

pact and flexible system for moving almost any dry, finely-divided bulk material. The pneumatic lines turn sharp corners, run between plant floors, fit snugly into unused, overhead spaces — without disrupting existing facilities.

Fuller has specialized in pneumatic materials handling systems for more than 30 years. One or a combination of Fuller systems can be the solution to your materials handling problem. Write or call Fuller today outlining your problem. Fuller will gladly furnish additional information with appropriate recommendations.

1176  
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# Fuller

pioneers in harnessing AIR

#### FULLER COMPANY

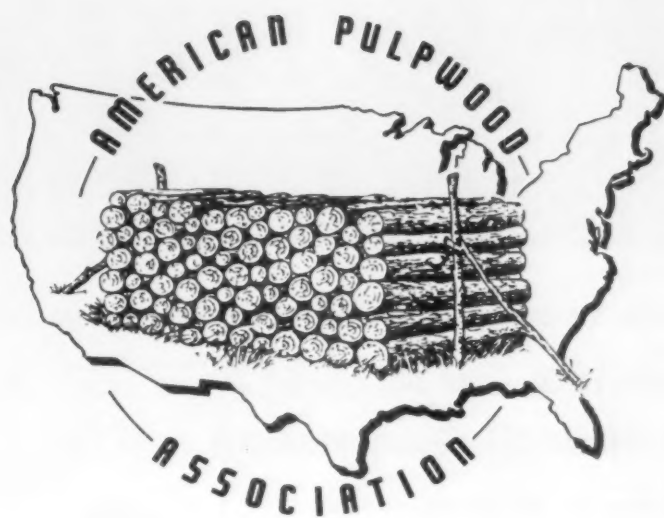
128 Bridge St., Catasauqua, Pa.

SUBSIDIARY OF GENERAL AMERICAN TRANSPORTATION CORPORATION  
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# PULPWOOD ANNUAL

## 1958





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# PULPWOOD ANNUAL—1958



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## FOREWORD

A plateau in pulpwood consumption was reached in 1957. As this 1958 PULPWOOD ANNUAL is being prepared, the levelling off of consumption continues.

As a cost-conscious Industry looks for new or better ways of producing and procuring pulpwood, we recommend a review of the many papers covered in this ANNUAL.

These official papers, presented at the 1958 Annual Meeting of APA, have been edited by PULP & PAPER, A Miller Freeman publication, as in previous years.

We appreciate very much their cooperation in making this ANNUAL available to our members and others interested in the Pulpwood Industry.

W. S. BROMLEY  
*Executive Secretary*

Prepared by AMERICAN PULPWOOD ASSOCIATION  
220 East 42nd Street, New York 17, N.Y.

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## GEORGE B. AMIDON

newly elected APA President

The 11th President of the APA is indeed a product of the Lake States Region, and particularly the State of Minnesota. He was born in the town of Houston, Minnesota, and is an alumnus of the University of Minnesota's School of Forestry, Class of '36.

He joined the Minnesota and Ontario Paper Company in 1944 after a round of experience with the Lake States Forest Experiment Station at St. Paul.

Mr. Amidon has been Director of Woodlands for the Minnesota and Ontario Paper Company since 1956. Besides company-wise forest management responsibilities for MandO, he administers the com-

pany's timber purchasing programs plus wood production activities in Minnesota.

He is a member of the Canadian Institute of Forestry, Society of American Foresters, Minnesota Research Council, and the University of Minnesota Institute of Agriculture's Advisory Council. He is married, has three children, and lives in International Falls, Minnesota.

Coming from a state noted for its cold weather, its beautiful lakes, and progressive foresters, George Amidon brings to his responsibility as APA President a warm personality and a full background of forestry and pulpwood experience in the Lake States Region.

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## PAPERS OF ANNUAL MEETING—1958

### Panel:

### Lowering Costs by Stabilizing Pulpwood Production



PANEL MEMBERS: (Seated, from left) T. R. Powell, Kimberly-Clark; E. A. Golden, Champion Paper & Fibre; T. G. Harris, Halifax Paper; (standing, from left) A. G. Curtis, Gaylord, chairman; Art Bennett, Armstrong Cork; R. R. Edgar, Bowaters; G. A. Pesez, International Paper.

## Stability Will Lower Costs

in both U.S. South and Canada. Reasonable tenure of sufficient forest land is essential. Also, more permanent workers

By **R. R. EDGAR**  
Bowaters Southern Paper Corp.

● This problem of stabilizing production as a means of lowering costs has now come to the forefront and all of us in the industry are attempting, in our own way, to find some solution leading to lower costs and at the same time placing our operations on a more stable basis than heretofore.

In this case, as in every evolutionary development, truths which have been more or less obscure except to a few of our more progressive thinkers suddenly become self evident to all of us. Thus during the past ten years it has become evident that the pulpwood production segment of the pulp and paper industry has entered into a new phase of development.

From a period when wood procurement for paper mills was a purchasing department sideline in the South and no large forest ownership was provided to insure a permanent wood supply, we have now advanced to a point where most mills are preparing for stabilized operations by acquisition of forest land and by the growing of forests on that land. In Canada, originally, the job of providing pulpwood for a mill consisted solely of the min-

ing of extensive timber limits. No particular thought was given concerning the future production of the forest land. Now we have carefully designed forest management plans and there is sincere interest in the problem of establishing the second crop of timber.

Originally no real effort was made to provide for industry stability, in fact actual practice undermined it. The industry tended to operate under a cheap wood policy, the results of which are now being corrected at considerable cost over and above any savings originally realized.

The paper industry is a stable industry. With its enormous fixed investments it can be nothing else. I took

the time to look up several dictionary definitions of "stability" and the one I think applies here is "a firmness in position." Such firmness in position is essential to industrial continuity, which is held by some authorities to be the most fundamental of all industrial objectives, for without continuity there can be no certainty of dividends, no certainty of wages, in fact industry cannot continue to exist without well laid plans to guarantee its future.

The factors leading to stability in the pulpwood industry are the same everywhere. However, in different regions various factors momentarily assume more importance because of different conditions. This is brought

### Symposium on Lowering Costs by Stabilizing Production

R. R. Edgar, Bowaters Southern Paper Corp., chairmanned this panel and he "kicked it off" by a discussion of developments in Eastern Canada and Southern U.S. He also quoted liberally from writings by Lucien Whittle, former APA president and woodlands manager, Brunswick Pulp & Paper Co., and Alex Koroleff, of the Woodlands Section, Canadian Pulp and Paper Association.

Mr. Edgar was followed by spokesmen for these U. S. regions—the Northeast, Appalachian, Southeast, Southwest and Lake States. These regions have many similar problems. The Pacific Northwest was not included because of its different character of operation, by which it has already achieved great stability and more mechanization.

out quite sharply by a comparison of the two references which were designated by your committee as guides for this panel. The two references are:

1. "Stability as a Factor in Efficient Forest Management," a book by Alex Koroleff, who has long been an authority on Canadian Forestry.

2. "A Pattern for Profit," an address delivered recently by Lucian Whittle, woods division manager of Brunswick Pulp and Paper Company.

In each of these references a strong case is developed for more stability in forest management in order to place the pulpwood supplies required by the industry on a more reliable and more economical basis.

Mr. Koroleff divides his book into two main sections. The first section is entitled "Forest Labor Management," and in it the author discusses the problems of seasonal fluctuations in woods operations and the labor situation which develops as a result of these fluctuations. He recommends that steps be taken to put woods operations on a year round basis as rapidly as possible.

The second section of Mr. Koroleff's book, entitled Forest Management, logically follows the first because it is immediately evident that if an intermittent seasonal operation is to be replaced by a continuous forest operation, then the concept of forest management as now generally practiced in Canada must be more or less revised.

#### **Labor is Catalyst**

In the past I have had some contact with the pulpwood industry in Canada and can understand why it is that the labor problem has been the catalyst forcing attention of management toward more stabilized operations, including a more intensive form of forest management. The difficulties involved in securing huge labor forces for relatively brief periods each year have been tremendous in late years.

Because of the almost total lack of security for woods workers, difficult working conditions, and the low social status assigned to this type of work in the industrial scheme, it is not hard to see why labor goes to the woods almost as a last resort.

It is also easy to see why it is difficult to train and hold skilled men in the industry, and why industry must get along as best it can with men who are frequently only half trained and who cannot work with acceptable efficiency. Labor must have a stake in the industry, a stake which can only be attained by reasonable assurance of steady employment.

The indifference of the Canadian

woods worker to woods employment is shown by the figures quoted by Mr. Koroleff that the average stay in a given camp is only 41 to 46 days. Further, that if the nucleus of professional woods work (about 15% of the work force) is not counted, the average stay of a transient worker is only 26 days.

Stability can be attained gradually by injecting a larger number of permanent employees into the work force with guarantees of steady work, and this is being done in the case of certain skilled categories of labor such as mechanics, equipment operators, etc.

Mr. Koroleff mentions several notable examples of operations which are progressing rapidly toward a continuous operation but in the examples cited the terrain is more favorable than the average. He points out that there can be a certain natural spreading of the work on the conventional intermittent operation because cutting operations are more efficient in the summer and fall and hauling is more efficient in the winter.

#### **Reason for Seasonal Logging**

The advantages of hauling during the winter season on ice and snow roads were primarily responsible for the development of the seasonal or intermittent logging pattern of the past. There has usually been, at least until recently, an adequate source of temporary labor available which lent itself to this scheme of things.

It also seemed most economical to get the cut out in the shortest period of time in order to reduce overhead. It also seemed best to construct the cheapest of temporary improvements since the nomadic, intermittent operation moved on to the next area after stripping the timber from another and wrote the improvements off against this "one shot" operation.

Thus the pattern of nomadic, intermittent logging evolved and it is defined by Mr. Koroleff as "the migratory character of large scale logging operations as contrasted with the continuous or steady use of forest areas. These terms do not imply any lack of system, and large pulpwood operations in eastern Canada, though nomadic in character, are usually conducted systematically under carefully and officially approved management plans."

The section on Forest Management in the Koroleff book points out the advantages and disadvantages of intermittent vs. continuous forest operations, makes suggestions for increasing the stability and efficiency of forest use, and finally makes suggestions as to how it might be possible to change

from intermittent to more stable continuous operations where a given area is operated on a sustained yield basis.

A number of advantages of the continuous form of woods operations and forest management include the building of a stable labor force, improved yields from the forest, maximum use of improvements, better forest protection, and better silviculture, including regenerative measures which alone can guarantee the permanency of the forest and provide regrowth in the shortest period of time.

#### **Changing to Continuous Basis**

In Canada three principal steps must be taken to change from intermittent to continuous operations. First, permanent improvements such as all-weather roads and forest communities must be built to replace the temporary logging roads, camps, and depots now widely used. Second, more intensive forestry measures must be adopted. Third, in order to protect the investments in items one and two, Crown limits should be sold as freehold, or a minimum measure, leased on a long term basis to the companies now dependent on them.

It is generally believed by woods executives contributing to Mr. Koroleff's book that such measures would reduce costs. Some believe that cost reductions would be immediate and some that cost reductions could not be realized for some time. Some few believe there would be no advantage in the continuous operation.

Mr. Koroleff also points out that a stabilized operation would be more conducive to the development of mechanized logging and that such an increase in mechanization is an essential step in stabilizing forest management.

Mr. Whittle, writing with the South uppermost in his mind, comes up with the same basic premise as Mr. Koroleff. He regards land ownership as "the essential ingredient in timber planning," and maintains that such land plus a sound forest management plan for it is the only "logical and reliable guarantee of company earnings." He further points out that as a direct result of forest management and his company's investment in it for a stable timber supply, woods workers are receiving higher earnings and enjoying more satisfactory living standards than heretofore.

Mr. Whittle further believes that increased efficiency in utilization and management of paper industry forests will result in reduced mill manufacturing costs, savings from which should be made available in part for further development of the forest through research, better management,



**GAINING STABILITY BY USING MORE SAWMILL WASTE . . .** a central chipping operation in Manor, Georgia, draws raw material from miles around, send chips to mill in truck at left. Picture by PULP & PAPER.

and more mechanization.

To sum up the essentials to stability of forest management as developed by both authors:

1. Ownership by the mills of a safe percentage of the forests upon which they are dependent.
2. More intensive forest management to provide better utilization, better silviculture, increased mechanization and research.

#### **Compare Canada and South**

There are several comparisons which may be made as between eastern Canadian and Southeastern operations. In eastern Canada the threat to stability of ownership is the preponderance of forest land in government ownership plus the inevitable reluctance of governments to divest themselves of any of the basic elements of production which might reverse the trend toward socialism.

In the South we have a preponderance of private ownership in most mill procurement areas but this ownership is not for the most part mill ownership. Much of the forest land in the South, about 73% of the total, is in the hands of small landowners who are to a great degree still uninterested in permanent forest management or financially unable to embark on it.

Many large non-mill owners are not interested in selling pulpwood except at exorbitant prices which Southern industry can ill afford to pay and remain competitive with other regions.

There is also some resistance to a further increase of mill land ownership by certain elements of the population and this resistance could be a very serious obstacle to stability and profitable operation of the paper industry in that region.

Originally the importance of land ownership to the industry was not generally recognized by management. The passing of time has corrected this omission and all but a few mills have been actively engaged, during the past ten years, in land acquisition programs to correct this situation.

This drive toward stability has, of course, touched off some unfavorable comment from those who do not understand the needs of the industry or understand that the welfare of thousands of mill and woods workers, and in fact the whole economy of the region, would be adversely affected should mill ownership of forest land be curtailed.

In eastern Canada the solution to the problem of providing adequate permanent improvements, roads, communities, etc., is a difficult and expensive one. Roads must be constructed through wild rugged country and forest communities are hard to establish in the wilderness where few of the amenities of civilization are present. Finally, the weather conditions in eastern Canada are an ever present obstacle.

In the South the access roads and rural communities are for the most part in existence. The people needed to manage the forest and harvest the forest crops are already on location.

In Canada the seasonal operation has been most common because of weather conditions and until recently the logging methods available. In the South the mild climate, with little snow and cold, encourages year round logging. In the Piedmont and Tennessee River areas, the rapid evaporation rate dries out woods roads so that operations are seldom long curtailed by rainfall.

In eastern Canada the intermittent, nomadic operation is apparently still the general rule, while in the South forest operations are now on a continuous basis. This is true because of the very nature of the timber stands which have all age classes in a given operating area and by their easy accessibility at all times of the year.

In eastern Canada about 80% or more of the timber used by the paper industry comes from company controlled limits. These limits still hold large reserve inventories of mature and over-mature timber. By contrast in the South less than 20% of all timber used is cut from company controlled lands which were frequently heavily cut over before they were acquired. Many of these lands have not been managed long enough to contribute more to the total wood supply.

#### **Southern Instability**

The instability of the Southern industry is demonstrated most clearly by a comparison of pulpwood, labor, and stumpage costs. Stumpage prices are now ten to twelve times what they were twenty years ago, while the cost of delivered pulpwood and the earnings of labor are only about four times as great. It is obvious that land owners have been able to extract economic rent far in excess of the general increase in the price level, presumably at the expense of labor.

A substantial percentage of the stumpage requirements of the industry must eventually come from company lands in order to guarantee that there will always be a dependable work force. At the present time the industry is forced with the alternative of seeing many of its independent



woods operators forced out of business by high stumpage prices or increasing the price of wood. Industry can ill afford such a cost increase at this time, and it would be no permanent solution as such an increase would soon be absorbed by higher stumpage prices and would not result in higher earnings for the wood producers.

Although the industry will always be dependent on the open market for a large percentage of its total requirement, this percentage should not be so great that the industry will be completely at the mercy of the market and the competition from other wood using industries. A high investment industry such as ours cannot jump in and out of the forest products market at will, as is the practice of small sawmills, pole and tie yards, and other wood using industries operating with low fixed charges and relatively small investments.

#### Improvement in Utilization

Mr. Whittle gives improvement in utilization considerable emphasis, in that we must try to work for better yields from the wood we purchase. He stresses the importance of getting fresh green wood into the mill before there is any loss from deterioration. The control of adequate stumpage on company lands makes it possible to operate on low mill inventories to obtain this objective.

The competition for market wood has now reached a point where buyers for many mills will accept small diameter wood and poorly trimmed wood in order to meet their quotas. Poorly manufactured wood can run as little as 65 cu. ft. of solid wood content per cord as compared with 80 cu. ft. from good sized carefully manufactured wood. Until such time as our forests can yield a higher percentage of larger wood and enough of it, mills will continue buying a lot of 65 cu. ft. per cord wood. Stability in forest management will result in adequate per cord yields.

However, it is recognized that the promotion of good forestry on non-industry lands should be carried on concurrently with the same development on company lands. Such action is basic if we expect to have an adequate resource available to insure a continuity of operation for our industry and for other wood using industries.

Certainly no stability of operation can be anticipated without an adequate raw material supply. As Mr. Whittle points out, timber, manpower, and equipment are required to produce pulpwood, and I believe that an assured supply of stumpage will in the

long run provide stability of labor and make possible investments in better equipment.

#### Tennessee Valley Situation

The Technical Committee Chairmen are scheduled to comment on the factors essential for stabilization operations and reducing costs in their particular regions, and in this connection I would like to make a few comments on the situation in the Tennessee Valley. Pulpwood production in this region is certainly not stable at this time, chiefly because of the land ownership situation controlling the availability of stumpage.

It is estimated that 70% of the private forest lands in this general region is in ownerships of under 500 acres and about one-third of such land is in ownerships of less than 100 acres. The Forest Service is the largest individual landowner but this ownership is now producing far below its potential and is not at this time a very important source of wood.

Only 19% of the wood in this area is produced by people who also depend on farming for part of their livelihood while only about one-third of the individuals delivering wood claim to be either full or part-time farmers. Over half of all people delivering wood claim that pulpwood production is their principal source of income.

Individuals who gain a portion of their living from industry or service jobs amount to only 7% of the total number of producers. Only 10% of the production is from full-time farmers. Many individuals who gain no income from farms still reside on farms. Thus 5.3% of all producers live in towns, 26.2% in rural non-farm communities, and 68.5% on farms.

About 70% of the producers obtain their wood from farm ownerships while 10% is cut from commercial forest lands. Only about 3% of the producers obtain their stumpage from national forests, which is a very low percentage considering the large acreage in such ownership in Kentucky, Tennessee, North Georgia, and North Alabama.

It has been estimated that the average cut per acre is about 9 cords, that the days spent on a given tract by a producer average 15. Some skidding, almost entirely by mule or horse, is done by 40% of the producers. Most of the hauling is done by 1½-ton trucks, of which 70% are five years of age or older, and haul about 2½ cords an average distance of 15½ miles. 83% of all producers use power saws.

For operations in the region as a whole the mean output per producer was only 437 cords per year. How-

ever, this average was distorted by a few operations and the median production is only 300 cords per year. The average number of men in such crews runs only three or four persons, which is far below the average in the rest of the South. The average length of time employees stay with a given producer is somewhere over a year.

#### Tennessee Valley Difficulties

The information we have on this area seems to indicate that there is for the present an adequate supply of labor, but that the difficulty in obtaining stumpage enough for steady work is discouraging the better types of producers who must invest money in the business and hire the labor. Further, any competition from new industry would soon soak up this supply by giving steady work.

It is obvious that farmers as such will not produce enough wood for our needs and that we must rely on the development of a professional woods worker class of labor from the labor pool now available. It is also obvious that we cannot expect real gains in mechanization and utilization until timber is available in concentrations which will make full-time use of expensive machinery possible.

It may eventually be necessary to curtail the number of producers so as to be able to insure full-time employment for those retained. This step is impossible now because a great number of individuals are required to locate enough stumpage to supply the mill requirements. There may be as many as 6,000 individuals now contributing some labor toward producing the wood our mill consumes. Were an assured stumpage supply available this number could well drop to around 1,500 permanent workers.

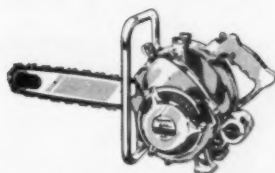
Finally, I will sum up what appear to me as the essential problems which must be solved to stabilize pulpwood production and thereby lower costs:

1. A reasonable tenure of sufficient forest land by the industry is essential in both Canada and in the South.
2. In Canada the next most urgent problem is that of financing and building permanent improvements necessary for permanent forest management and logging of over-mature stands. Forest management by regenerating the new crop can proceed concurrently with this project.
3. In the South the most important problem after sufficient land is available by purchase or lease is that of finding sufficient funds to put this land into full production of wood and to keep it producing. Forest improvements are of secondary importance but should be developed where necessary as rapidly as required.

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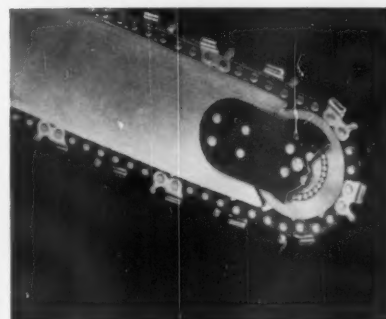
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PP-7

# What Each U.S. Region is Doing to Stabilize Production—Lower Costs

## Northeast Does Less River Driving, More Barking and Uses More Hardwoods

By GERRY A. PESEZ  
International Paper Co.

• The Northeast has traditionally experienced the most complex conditions of pulpwood production of all five principal pulpwood producing regions. Not only do the elements in the form of severe winters influence the means and methods of pulpwood production, but also Northeastern mills have all at one time or another required a substantial portion of their wood in a peeled or debarked form. Many mills have always required, even to this day, all their wood delivered in a peeled condition.

To obtain sufficient supplies of sap peeled wood it is necessary to set up logging camps, construct elaborate systems of winter and summer roads and, most important of all, obtain sufficient skilled woodworkers.

The sap peeling season in the Northeast is of relatively short duration, lasting about three months. In order to augment the quantity of peeled wood to be produced, it is customary in the Northeast to simply fall and peel the trees in long lengths, leaving them in this condition until the sap-peeling season is terminated. Following this operation, comes the skidding to landings and bucking up the tree or log lengths into 4-ft. lengths and piling for measurement and loading.

In recent years, sufficient native labor has been lacking to carry out this type of pulpwood production, and the Northeast has annually imported large numbers of Canadian woodsmen to produce pulpwood. Since major portions of these pulpwood operations are carried out in remote sections of the forest, it is necessary to take advantage of winter conditions for hauling and trucking out the pulpwood to stream banks if it is to be river driven, directly to the mills in some cases, or to rail sidings and concentration dumps for summer trucking.

### Climate Also a Problem

I have but briefly touched upon some of the many problems confront-

ing those in charge of wood procurement in the Northeast. The exigencies and uncertainties of the climate beset the men in charge of getting out pulpwood during the winter months. A sudden thaw will wreak havoc with snow or ice roads, just when a job is well under way, with teams and trucks held up until freezing weather returns to restore good conditions. If the warm spell is of long duration, it may mean that a portion of the cut must be left in the woods until the following winter.

It is principally because of these conditions that Northeastern mills have had to carry comparatively large inventories of wood to see them through until the following winter. In general mills in this region normally have three to five months supply of wood in their yards.

A few mills in the Northeast still drive a portion of their wood. Some of this wood does not arrive at its destination until the following year. River driving is arduous work and requires special skills. This type of native labor is also rapidly disappearing. As a result less wood is driven each year in the Northeast.

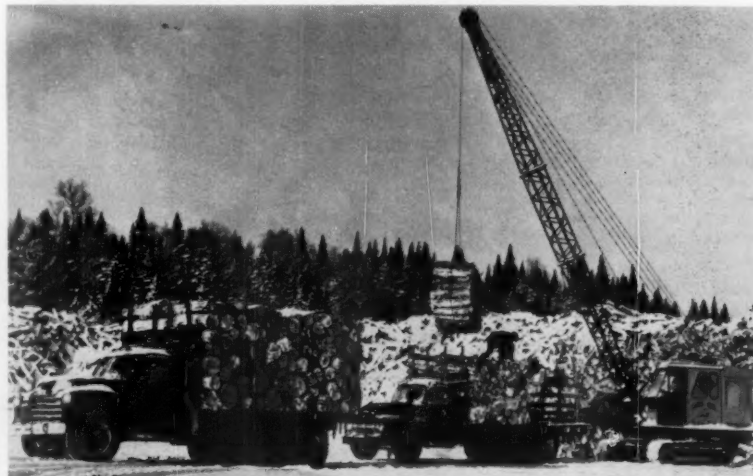
### Reasons for Peeling Wood

One of the chief reasons for producing peeled wood in the Northeast is that much of it must be transported long distances by rails. Sap peeling lightens wood considerably, thus reducing freight costs per cord. In these days of continually rising freight rates, this means considerable savings and eliminates paying freight on bark which has to be discarded at the mill.

Recent trends in mechanization of woods operations have done much to assure a more even flow of wood to Northern mills, in that it is now possible to deliver wood during the summer months which heretofore could only have been delivered during the winter months.

In recent years in the Northeast there has been a strong trend away from the use of long fibered softwoods, such as spruce and fir, much of which was only available at long distances from the mills. This is particularly true in Pennsylvania, New York, Vermont and New Hampshire.

Other species, notably the hardwoods, have come in for wider usage and this alone has radically altered wood procurement methods. The growing use of hardwoods has therefore made available to those mills pulping hardwoods, extensive supplies of raw material within relatively short distances of the mills. This in turn has created an entirely new labor force



LESS RIVER DRIVING IN NORTHEAST . . . sling-equipped crane and trucks keep the wood moving to mill in Maine by operating on a frozen lake, as shown here. In future, snow-topped roads are expected to handle heavy loads of Northeast logs as equipment is improved.



for the production of pulpwood in the form of many small full-time producers and part-time producer-farmers.

Furthermore several mills in this region, particularly those which have converted to hardwoods, pine and hemlock, have installed sufficient drumming equipment to debark all or a major portion of their wood requirements. This has largely reduced their dependency on peeled wood as well as on imported seasonal labor.

Several mills in the Northeast are today purchasing chips made from sawmill residues. While this source of fiber is still relatively a small percentage of the total quantity of pulpwood annually consumed in the Northeast, it is nevertheless a growing source of fiber and is bound to increase in volume annually. One mill today is receiving more than 30% of all its wood requirements in the form of purchased chips.

## Southeast Needs Better Equipment and Better Planning to Lick Problems

By **TOM G. HARRIS**  
Halifax Paper Co., Inc.

● The Southeastern Technical Committee embraces an area of five states—Virginia, North Carolina, South Carolina, Georgia and Florida. Pulpwood production in this area increased from 3½ million cords in 1940 to more than 11½ million cords in 1956. It is indeed remarkable that such growth was even possible.

This rapid growth has brought many changes. In 1940, pulpwood production was relatively stable, due to a surplus of cheap stumpage and cheap labor. The majority of pulpwood was produced by labor which depended on pulpwood production for its main source of income.

### Profit Margin Squeezed

In recent years, this pulpwood producer has seen his profit margin gradually squeezed by increasing costs. The price of pine pulpwood has increased 264% since 1940, which is more than double the increase indicated by the "All Commodities Index" for the same period. Pine pulpwood stumpage, however, has increased 430% during this time (1940-1955).

As a result of this narrowing profit margin, and the increasing difficulty of securing stumpage, an alarming number of pulpwood producers are being forced out of business. Thus, an increasing volume of pulpwood is now being produced by part-time or sea-

### Efforts to Stabilize

In conclusion the Northeast is attempting to stabilize pulpwood production as follows:

1. Through the utilization of greater quantities of available species located nearer the mills.
2. Eliminating the necessity of dependency on peeled wood entirely or in part.
3. Encouraging the conversion of debarked sawmill residues into usable chips.
4. The continued use of veneer mill cores and tie ends.

The combination of the above practices will encourage year around pulpwood production by a local labor force which benefits directly from such continued employment. In turn this will mean a much reduced inventory of wood that needs to be carried by those mills who have converted to species readily available to the mills.

and was built up to a peak during the normally dry fall months of September and October so as to provide a margin of safety to carry over the bad logging and low production months of December, January and February.

Now, because of the necessary use of seasonal and part-time operators, pulpwood inventory is built so as to reach a peak in late spring, thus insuring an adequate supply of pulpwood during the late summer and fall when the seasonal farm labor is busy harvesting crops.

Notice that peak production at present is during the worst logging months of the year. In other words, pulpwood production in our area is less stable now than a few years ago. This, also, has an added disadvantage of forcing mills to carry a relatively large inventory during the hot summer months when deterioration of stored wood is greatest.

### Adequate Stumpage is Key

It is generally agreed that adequate stumpage is the key to a stable pulpwood supply in the Southeast. It is also generally agreed that if adequate stumpage is provided at a reasonable price, a substantial portion of this stumpage must come from company owned or company controlled land. Expenditures for forest management have increased tremendously during the past few years so as to provide for this stumpage in the future.

The future looks bright provided one has vision enough to look far enough ahead. Unfortunately, very few companies are in a position today to provide a substantial percentage of

sonal operators. This part-time producer is less efficient and is responsible for delivering the poorest quality pulpwood. Unfortunately, this is a trend away from stability.

Let me give you an example. Ten years ago pulpwood production for our mill was furnished by full-time pulpwood producers who employed a small and fairly stable labor force. Mill inventory of pulpwood was kept low



LESS HAND LABOR LIKE THIS . . . more and better equipment is one of the major needs to stabilize production and reduce costs. This picture by PULP & PAPER was taken at a Southern U.S. operation.

their pulpwood requirements from company lands on a sustained basis. It would seem that, at best, ten years will be required for this increased forest management to begin to provide stumpage in sufficient quantities to create a stabilizing influence on pulpwood production.

The problem facing wood procurement personnel in the Southeast today is how to survive the next ten years or more until adequate stumpage at a reasonable price is available from company lands and from other lands recently placed under more intensive forest management.

#### How to Stabilize Production

No one cure-all is believed available. However, the situation is not hopeless. Let's explore the possibilities and see what can be done now and in the immediate years ahead to stabilize pulpwood production and lower pulpwood costs.

1. **Maintenance of adequate inventory levels:** Other than an adequate stumpage supply, there is no more stabilizing influence than that of maintaining an adequate inventory level. It is realized, of course, that as inventory levels are raised, greater yard costs result, as well as some loss due to stored wood deterioration. These increased costs are partly offset, however, by savings resulting from less "panic procurement," which invariably is the result when inventory levels are reduced too low.

Considerable thought is now being given throughout the South to the problem of reducing deterioration of pine pulpwood in storage. A solution of this problem would greatly facilitate pulpwood procurement during this interim period.

2. **Increased utilization:** This is to be accomplished by greater use of fiber from the waste of the lumber and other wood-using industries. Through research, ways will be found to recover and utilize the fiber from that portion of the tree which is now left in the woods.

3. **Development of new and more efficient equipment for harvesting and transporting pulpwood:** This holds promise of obtaining immediate results by increasing the per man-day output, thus permitting higher wages and a more stable labor force.

4. **Research aimed at utilizing a higher percentage of each stick of pulpwood which reaches the mill:** At present only 30% to 40% of each stick of rough pulpwood ends up as a salable pulp or paper product. If this percentage is increased with a resulting increase in sales, then pulpwood prices can advance without increasing

the per ton cost of end product.

5. **Efficient timber planning:** As Lucian Whittle so ably presented in his article, "A Pattern for Profit," efficient timber planning can and will provide immediate dividends by reducing costs through better utilization of the resources available and through better control.

It is apparent that those of us in

wood procurement are faced with a challenge. We have no choice but to accept this challenge and attempt to solve the problems as they present themselves. Efficient use of the brain power at our disposal can solve the immediate problems as well as the continuing problems concerned with stabilizing pulpwood production and reducing pulpwood costs.

## Appalachian Mills Aid Small Operators, Assist in Training and Buying Equipment

By ART L. BENNETT  
Armstrong Forest Co.

● Over 80% of the pulpwood cut in the APA Appalachian Region is produced by the small jobber or farmer-type supplier with an average production of about 100 cords per year. Such producer is a part-time single truck operator with a light one-man chain saw and perhaps a small farm-size tractor. He either owns his own stumpage or acquires it nearby from other privately owned woodlots; only a very small amount of stumpage is purchased from publicly owned forests. Seldom does he employ more than one or two helpers—quite likely they will also be part-time workers used during short good weather periods when steady deliveries can be made.

Because of the inherent uncertainties of this small producer system, I am sure most of us have given serious thought at one time or another as to how we might stabilize our production and, if possible, lower costs. Although we are currently in a period of oversupply, I am firmly convinced we should be continually striving to improve our position by encouraging a sufficient number of these unpredictable part-time suppliers to become dependable year around pulpwood producers.

In our experience with operators working on company land in Pennsylvania, we have found that a small full-time working jobber, with one to three steady employees, has consistently been our most efficient production unit. This size jobber working near his home is happier, is a more flexible operator, is more amenable to selective cutting practices, has less labor difficulties, and has less investment problems than does a large contractor or a company type operation.

#### Developing Full-time Producer

Very briefly I will list a number of factors we have tested, and that show promise toward helping us to develop

and stabilize the small full-time pulpwood operator.

1. On-the-job woods operator training.

2. Assist him in obtaining and financing an ample supply of desirable stumpage within driving distance of his home. Our chemical girdling program has been an important element in this achievement.

3. Provide him with a contract for steady year around production at a monthly rate of from 75 to 150 cords.

4. We help him with his job layout and road building problems. He may need the snow plowed from his roads during the winter in order to keep in continuous production.

5. We give him advice and assistance in record keeping, in equipment use and in equipment financing. We encourage the idea that pulpwood production can be managed as a small business enterprise.

6. We have helped establish a reliable chain saw repair center for convenient service.

7. Partnership arrangements are encouraged whereby several or all members of the crew share in the operation returns. Father and son or several brothers frequently make a good combination, but we suggest that all such partnerships be fully covered by written agreements.

During the 1956 and 1957 season, we assisted 16 such jobbers to get started on a full-time basis as operators on company lands. To date 11 of the 16 have proven successful and are currently producing steady monthly quotas of wood. Delivered mill yard production per 8-hour man-day for several of them is ranging from 1.7 to 2.4 standard chemi-peeled cords, which in our area is much higher than any large contract operation.

The only real problem we have encountered with the small full time jobber, once they have operated efficiently for a period of time on a small scale, is that of trying to temper their thinking about becoming a big contractor.



Introducing Soderhamn's all-new

## DC-6 LOG BARKER

### *Now the smaller sawmills get a break!*

Here's a new barker designed for top efficiency, dependability, and quality barking — yet at low initial and maintenance cost, and backed by a manufacturer with more than seven years' experience in rotor and flail scraper barkers.

The DC-6 will make a profitable investment for mills cutting as low as 7000 bd. ft. (Doyle Scale) per 8-hr. day, and production up to 45,000 feet per shift may be attained, depending on log sizes, condition, and general efficiency of operation. It will handle logs of from 5" to 36" diameter, and from 6' to 21' long. Interchangeable heads enable you to meet rigid barking specifications — a "must" in today's competitive market.

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### **Heavy Construction for Long Life**

The DC-6 is of heavier construction than any other low-cost barker on the market. Requires about 8' x 26' space, plus log deck, ramp or skids.

**Installation — complete with motors — \$8,500**

*Write for new catalog sheet — no obligation!*

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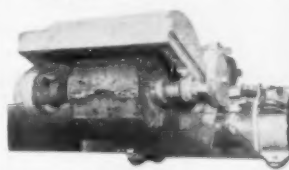
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**ABRADER** — Contacting surface is hard-faced, placed on removable jacket. Low operating cost. Barks 12" strip.

**PLANER** (not shown) — Has four easily replaceable hardened steel knives. Used where entirely knot-free logs are desired. Barks 12" strip.

**NOTE:** A complete barking, chipping, and screening operation, including a DC-6 Barker, 48" Horizontal Chipper and a CS-20 Horizontal Rotating Chip Screen can be purchased for less than \$20,000. Write for complete details.



# Long Range Plans, Permanent Workers Will Help to Stabilize the Southwest

By E. A. GOLDEN  
Champion Paper & Fibre Co.

● The problem of complete utilization is a great challenge to the industry today. To survive, waste must be eliminated and maximum use be made of all pulping material.

Woodland has and can play a very large part in waste reduction, by co-operation in the use of more species, and improving wood preparation and scheduling techniques to deliver a better product for pulping at a reduction in real cost per unit of measure.

Adequately financed programs of research in more complete utilization will play an important role in the battle for tomorrow.

The nature of forest development and the products of the forest immediately precludes effective operation on the basis of short range planning only. The long range aspect of forestry is aptly expressed by Sir Thomas Brown in his "Hydriotaphia": "Generations pass while some trees stand, and old families last not three oaks."

The same thought is equally applicable to all phases of woodlands operations concerned with "logging" the mill. Any individual or organization who operates on or is condemned to operate solely on the basis of short range planning is assured of three things. Those difficulties which were present yesterday are still present today and most assuredly will be present tomorrow.

Short range planning should only be used to cope with immediate situations and should be in principle those modifications which lend the necessary flexibility to a good long range plan.

## Importance of Execution

One very important thing to remember is that a plan is only as good as its manner of execution. A mediocre plan vigorously executed is many times more effective than the best of plans administered in a lackadaisical manner.

The essential ingredients of good planning are in the proper analysis of adequate data, from the whole round-about process of pulp and paper products beginning with the forest and ending with the ultimate consumer. Each phase of the process from forestry through wood procurement, processing, and distribution are all integral parts of the whole operation and it is only through the mutual co-

operation and coordination of all can the industry become relatively stabilized and form a true pattern for profit.

An important mission of woodlands and forestry personnel is to help educate the mill people in the wood they use and wood production problems and in turn to be educated in the manufacturing process and end products to the mutual benefit of each other.

In Champion's Texas Division, woodlands representatives are integral members of discussion and conferences in which the pulping material may be a factor. It may prove quite surprising how apparently large problems can be minimized and solutions be worked out in the light of frank discussion.

## Personnel Aid Operation

A well informed woodlands personnel can establish a relatively stable wood supply operation. The out-moded idea that wood storage is just another stopping place for wood from forest to finished product can be substantially discarded.

The storage pile can perform its prescribed function of carrying an agreed upon amount of wood as insurance of continuous operation.

Proper scheduling which allows lead time for pulpwood production and allows for variable lapsed time of wood in transit will tend to gear the wood flow to short term requirements.

It is only through alert wood coordination and increasing analysis of wood production and movement factors that the dividends of a stable wood flow be enjoyed.

## Other Aids to Stability

The delivery of the maximum amount of wood possible direct to the mill commensurate with timber location and local traffic problems should be encouraged.

The development and maintenance of the best possible rail transportation facilities is a joint responsibility to be shared equally by the industry and railroads.

Maximum safe loads and short round trip travels are important features of complete rail facilities utilization. Demurrage is actually more important in terms of complete rail equipment utilization rather than actual demurrage dollars saved.

The forestry profession can look with pride upon past accomplishments in forest management, but the job has just begun. The immediate problem is

to use the present available supplies of company stumpage to level off the cycle of supply and demand.

The development of a long range plan for proper integration of constantly increasing timber harvests from company lands into the total picture of "wooding" the mill as growth and stocking warrants is essential.

The best applicable techniques of forest management should be employed to raise the level of stocking, growth and timber qualities on all industry forest properties.

The forest geneticist can go a long way toward tailoring the tree to meet industry's need if parallel research is carried on to determine those needs.

Development and testing of improved methods and equipment for timber harvest must be continuous to help combat rising costs.

Only in a stable situation of wood production will the itinerant (temporary) woods worker tend to be eliminated and a permanent force of competent loggers and woods labor be maintained.

A permanent force of woods workers will reduce the chance of serious interruption of wood flow and upgrade the quality of pulping material received at the mill. Such a labor force will be better informed on processing difficulties and be able to help control problems at the source of the material.

Safe woods practices can more easily be encouraged to help combat the rising cost of workmen's compensation insurance.

A vital problem is that we must see that our country maintains a political and social atmosphere which will support the effort we must take to bring our lands to top productivity and to maintain them that way. By the same token, punitive legislation which would hamper the efforts of woods labor, loggers, and industry to develop the productivity required in a highly competitive situation must be recognized and opposed.

The timber stands and woodlands operations are as surely a part of the total picture as the digesters, paper machines, etc. and the alert management will treat them as such.

Long range planning is needed to the greatest extent possible in the interest of productive timber stands and efficient economical logging.

Progress can come through accidents and happenstance, but the industry cannot afford to wait. Adequately financed programs of research and development are essential to maintain a necessary rate of progress.

Set long range goals and approach them vigorously being ever wary of changing conditions and always flex-

ible so that modifications may be introduced whenever it may be deemed necessary.

Why not take four sprinters—wood-

lands, operations, management, and research—mold them into a relay team and prove that we can run faster than we can.

## Lake States to Benefit by Steady Wood Production, Better Use of Public Timber

By **TOM R. POWELL**  
Kimberly-Clark Corp.

● In reviewing the subject as it applies to the Lake States, let's first look at what stabilization means to the mill, then the woods, and then see how the two situations might be coordinated to the best over-all advantage.

Storing wood at the mill costs money.

1. It involves one or two extra handling at a cost of about \$.75 each.

2. Every cord year of storage adds 4% to the delivered cost of the wood for interest on the money invested.

3. We estimated there is an average fiber loss of 4% for every cord of rough wood stored over the summer months. Deterioration loss can be as high as 14% in wood heavily infested with borers and bark beetles.

4. Wood storage involves fire protection and insurance costs and also personal property taxes.

Therefore, at the mill, regulating daily pulpwood deliveries to daily consumption and thereby eliminating the need for any storage would be the ideal situation.

In the woods there are a number of conditions which make it impractical to meet this ideal.

1. General weather conditions cause irregularity in daily deliveries.

2. The pronounced winter season in the Lake States causes irregularities in seasonal deliveries.

a. It stops or slows down other activities, such as mining, construction and farming which increases the amount of labor and equipment available for woods work during the winter.

b. It practically stops deliveries for a month or so in the spring, and sometimes for extended periods during the fall and winter.

3. The supply of labor in the timbered area of the Lake States is more or less static but the amount available for woods work varies from year to year according to economic conditions. When there is a lot of work in other industries too few want to cut wood. When there isn't other work available too many look to the woods for employment.

### Variations in Supply

4. There is quite a variation in the supply and growing conditions of the five main pulpwood species in the Lake States. From the standpoint of economy in woods operations the delivery schedule at a particular mill depends on the species of pulpwood the mill requires.

a. From the standpoint of supply and growing conditions, aspen and other hardwoods could be produced and delivered for ten months of the year which would make it feasible to maintain a minimum inventory of two to three weeks from June through September, building it up to four to five weeks by the end of October in preparation for deer season and poor weather in November, and to four to six weeks by April 1.

b. In most areas jack pine can also be produced and delivered for ten months of the year, but the supply is not adequate to meet the requirements of all Lake States mills so inventories are controlled by the delivery of imports.

c. The growth of balsam in the Lake States greatly exceeds the current demand but it usually grows mixed with other species which affects the time it can be produced. This makes it necessary to carry at least a month's inventory during the summer and a four to five months inventory as of April 1.

d. Many spruce stands are most economically logged during the fall

and winter which makes it advisable to have a six or seven months inventory of spruce on April 1.

Now how do we go about stabilizing production to the maximum within the limits set by these conditions. In my opinion the goal at which to aim is establishing a permanent production force capable of meeting the mills current consumption and using the extra force available during the winter to build up the inventory for use when the permanent force can not operate.

### Permanent Production Force

Establishing a permanent production force is not too difficult if the mill controls a major portion of its timber supply, either by owning the timber rights or by the absences of other markets for the timber it requires. But in the Lake States very few mills are in this position and for most mills building up a steady production force becomes quite a problem.

Only 40% of the timbered area is within trucking distance of a mill and some of this overlaps with several mills. Only 3% to 4% is owned by pulp mills, with a very large portion of the balance in public ownership (Wisconsin 16%, Michigan 32%, and Minnesota 56%).

The stumpage requirements of the part-time producer are fairly well taken care of by woodlots and the public agencies, but they are not for the steady producer who requires 500 cords or more a year to stay in business. He has to depend on public auction sales for a large portion of the stumpage he requires. These sales are usually arranged to develop as much competitive bidding as possible.

Sales are made at infrequent intervals at times when everyone is looking for stumpage, and in not sufficient quantity to take care of all the operators. They may include timber for which there is no market and the cutting schedule is set by the agency with no regard for economic conditions.

It seems to me that the general public interest would be better served by regulating the sales to provide for the needs of individual steady operators who can add stability to the forest industries and at the same time make better use of public timber.

# The Secret of Better Chipper Knife Performance

MODERN CONCEPT PRODUCES KNIVES  
CUSTOM MADE FOR EACH WOOD ROOM



By JOHN A. GAINES,  
Chief Metallurgist,  
John W. Bolton & Sons Inc.

It is vitally important that some yardsticks be used to measure chipper knife performance. These yardsticks vary widely from one mill to another. The ones most frequently used, either singly or in combination, are:

1. Number of grinds per knife life
2. Sawdust count
3. Average knife width loss per grind
4. Condition of chips
5. Percentage of chips of acceptable size
6. Hours of cutting before dulling
7. Tons, cords or rafts cut before dulling
8. Total tons, cords or rafts cut during knife life

In any performance evaluation, the most important consideration is how well the chipper knife performs under the particular wood room conditions of the individual mill.

The two properties desired most in a chipper knife are directly opposed to each other; no knife contains both in maximum degree. Wear resistance, the ability to maintain a keen cutting edge during prolonged service, requires a different steel chemistry and heat treatment than toughness, the resistance of the knife to excessive nicking from foreign material. Because of this, no standard knife can achieve a high performance evaluation under all the varying operations and chipping conditions that exist. Variations in heat treatment alone cannot provide all the different properties necessary for the variations in chipping conditions encountered. Variations in steel analyses are necessary as well.

Some woods and some operations cause more nicking in a knife than do others. For satisfactory chip production under rough operating conditions, a knife must have those qualities that resist nicking and also maintain good edge properties from the standpoint of wear. It is also apparent that a knife designed for this type of operation cannot achieve the highest rate of performance in a mill chipping clean wood, where prolonged edge maintenance is desirable.

## Specific Knives for Specific Conditions

Faced with the fact that there can be, with existing metals and processes, no all-purpose chipper knife, ideal for every chipping condition, we at Bolton decided that the logical alternative was to custom craft chipper knives for specific wood room operations.

First we began a specialized study of many mill operations and of different high alloy steels. Laboratory tests of special steels were made with variations of heat treating procedures and of grind sequences. Then followed numerous field trials under widely different conditions in the major timber sections of the United States.

As the result of this research, we assembled a large amount of background information for making our 'Blue Devil' High Speed Chipper Knives. However, because they are custom crafted for individual operations, information about the chipping conditions of each new mill still has to be secured.

## Type of Operations Important

Among other questions, mill operators are asked about the type of wood used and its condition prior to chipping, the type of failure found in unsatisfactory knives, facts about the most satisfactory knives that have been used, facts about the chipper machine itself, and how the operator evaluates the performance of a chipper knife.

After careful study of the answers to the field survey, Bolton metallurgists specify the chemistry of the metal to be used. Chemical elements such as carbon, chromium, molybdenum, vanadium, tungsten and others combined with the iron parent metal in various proportions, each add individual properties to the resultant steel. Steels of correct analysis for specific desirable properties are inventoried in a variety of sizes. The heat treatment process is carefully specified. This is done efficiently because of the accumulated information gathered from previous laboratory and field tests.

## Edge Impact Resistance Measured

In laboratory testing, edge impact resistance is measured accurately by a special edge-testing, Bolton-designed machine to determine the force required to cause a nick, how deep the nick will be, and how much deflection the knife edge will stand before fracture.

Wear, or the resistance of a steel to wear, is too complex to achieve meaningful laboratory measurement. This is primarily due to: Changes in microstructure created by the generation of heat; Using an abrasive element harder than the matrix of the steel tested; Particle size of the abrasive medium. Accurate wear resisting qualities are best determined through extensive field testing. These facts have been assembled in a file of performance results.

In this manner, 'Blue Devil' Knives are fabricated to meet exactly the individual mill's requirements. Provisions are made in the knife for wear resistance and edge impact resistance in the balance necessary for the best results in chip production.

## Knife Stress Relieved

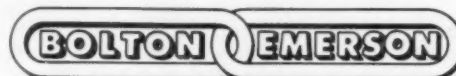
The bluish-black surface color that identifies 'Blue Devil' Knives is the result of another step in their custom heating to provide absolute uniformity of the entire knife from the extreme cutting edge to the back edge.

When the custom crafted knife has earned a high evaluation in chipping performance in the particular mill for which it was designed, absolute duplication in replacement is assured. The numbers etched on the back edge of each knife refer to its detailed record of custom crafting and quality control.

The technique of custom crafting 'Blue Devil' Knives for individual wood rooms and specific problems is indeed a modern approach to the manufacture of chipper knives, and one that can produce highly satisfactory results. At a large Southern mill, chips produced at the end of 2 3/4 hours of cutting were no longer acceptable. Custom crafted 'Blue Devil' Knives are currently cutting acceptable chips after nine hours.

Where all-purpose knives had failed to achieve these performance results, custom crafted knives succeeded because they were designed to solve a specific problem. We at Bolton believe this is the secret of better chipper knife performance.

(For further information send for new Bulletin No. CK-557 or request that a survey be made of your chipping operation at no obligation.)



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and The Emerson Manufacturing Co. Division  
Lawrence, Massachusetts



# Cost Control, at Low Cost

serves need of small producers. South is making progress with IBM programs in use. Leadership of industry needed

By **SAM GUTTENBERG**  
Southern Forest Experiment Station,  
U.S. Forest Service

● Logging-cost studies have sometimes been more highly valued by researchers and academicians than by those most directly concerned—the growers, loggers, and processors of timber. But in recent years, the Southern pulp and paper industry has become increasingly interested in logging costs.

For very good reasons, simply raising delivered wood prices to encourage more production no longer seems desirable to an expansion-minded industry. If they are to acquire and hold new customers, paper products have to be marketed at competitive prices. Too, industry leaders are aware that the main burden of stimulating cost-saving logging methods falls to them. The producers, mostly small operators, cannot be expected to spend much time and money in developmental work. But devising better logging techniques is only half of the development job. Equally important is demonstrating the feasibility of improved methods and speeding up their adoption. For this purpose, logging-cost studies should prove useful.

With the current interest on logging costs, how do you go about getting data? After you get it, what does it get you? Let's discuss these questions briefly.

At the outset, a distinction needs to be drawn between traditional pulpwood suppliers and professional producers. Two-man or 3-man teams equipped with a saw and light truck, working part-time, still produce most of the cordage, but professionals are bringing in an increasing share.

Professionals are those who strive to operate year-long and find it necessary to provide sufficient earning opportunity to hold young and vigorous men in pulpwooding. This means, among other things, supplying the men with a proper combination of stumpage and logging machinery. As living standards and wage rates are likely to continue rising, the industry will probably find it necessary to depend heavily upon professional producers. Both the industry and this



Sam Guttenberg

group of producers stand to benefit from logging-cost studies.

## An Inexpensive Method

The late Professor D. M. Matthews of the University of Michigan advocated a simple approach to serviceable cost data in his book, *Cost Control in the Logging Industry*, published 16 years ago. The method is certainly inexpensive—ideal for application by pulpwooders. It relies heavily on records of outlays for wages, stumpage, equipment use, and the like. For instance, a producer might record, for each parcel of timber operated, the cordage, acreage, hauling distance, machine costs, and wages. From these items the chart shown in Figure 1 can be developed.

The chart summarizes the producer's data in terms of average cut per acre, hauling distance, and cost per cord. Each point represents a different

tract. Needless to say, cost variations arise from reasons other than differences in cut per acre and hauling distance, but this approach can handle only two independent variables conveniently. Thus, it is necessary to select the most important items from among those available in the records. (The effects of other variables show up in the way the data points fall around the lines representing hauls of 10, 20 and 30 miles.) For simplicity, straight lines have been hand-fitted to the synthetic data. Given data covering a wide range of operating conditions, one should expect some degree of curvature.

This type of chart, based on a producer's experience record, can serve to answer such questions as: Can I afford to operate a given timber offering? How much can I pay for the stumpage?

Let's suppose that the producer's records permit estimating the man-days of labor utilized on each parcel of timber cut. It would then be possible to prepare the chart shown in Figure 2.

## Output per Man-Day

As before, cut per acre and hauling distance are the independent variables, but now the dependent variable is cords per man-day. The chart lends itself to some interesting interpretations. This hypothetical producer pays his men by unit of output, a common

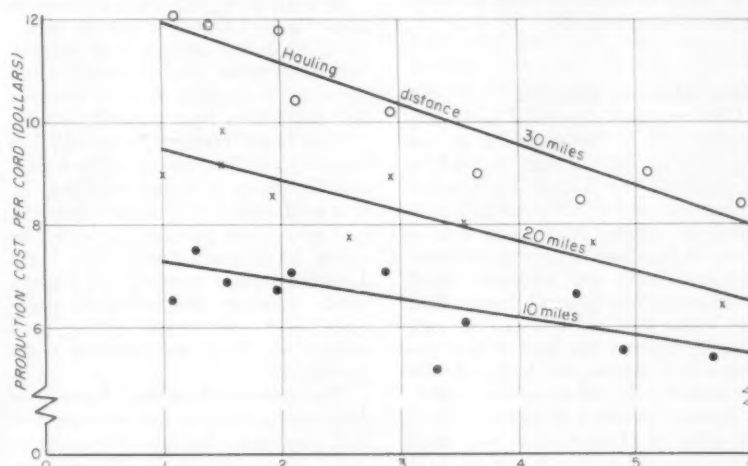


FIGURE 1

and effective supervisory device. But to the men, earning an adequate day's pay means cutting and delivering to shipping points or mills 1.5 cords of bolts per man.

On the chart, all the area below the level of 1.5 cords per man-day represents situations in which the men are not able to earn their desired wage. Yet this is where the producer has been concentrating much of his cutting. The chart shows one reason why he has been operating with three crews: one coming, one going, and one working.

Some of those who quit probably get out of pulpwooding all together. And many of those who leave are likely to be the sort of uncommon laborers that are, and will continue to be, needed in modernized pulpwooding. A producer who prepared his own charts could minimize labor turnover. It would be fairly easy for him to distinguish between the tracts in which the men can earn a day's pay working by the unit and those in which they cannot. The tracts that the producer finds it necessary to pass up could be turned over to part-time cutters.

Such simple, virtually costless, studies could be worth a great deal to the industry. Although I am implying a do-it-yourself procedure, in practice most producers would need the aid of wood-procurement foresters in making and interpreting such charts. The charts would enable producers to achieve material benefits in terms of a more stable labor force, greater cordage delivered per man-day, and more effective stumpage buying.

From the industry's viewpoint, getting producers to keep simple records from which to prepare analytical cost charts would be an important step towards making them more receptive to improved pulpwooding methods. As producers learn how to prepare and interpret such charts, they will also begin to sense the need for more penetrating appraisals.

#### More Intensive Analysis

The approach described so far can handle only a few variables at one time, and crudely at that. It can help a producer to adjust his current equipment and crew organization to different logging conditions but it does not help him to appraise alternative equipment and methods. Until producers get to be much bigger than they are today, comparisons of such alternatives, and the kind of cost analyses they require, will be largely the concern of pulp and paper companies.

Because the kind of cost data is of fundamental importance, we must first decide what type is needed. Is it average cost experience? Averages are

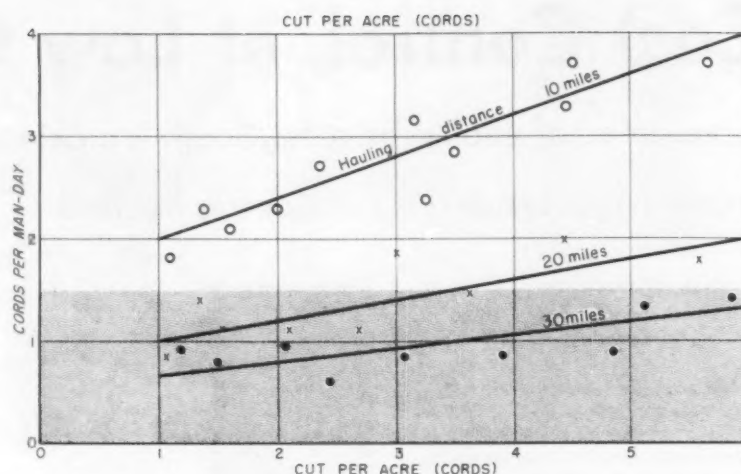


FIGURE 2

useful for many purposes and usually easy to obtain. Any mill manager could go to his files and quickly determine the trend in annual average pulpwood costs. Aside from showing that wood has become more expensive, however, these records would yield little information suited to controlling costs.

We must determine what lies behind the averages. This leads to consideration of cutting conditions, alternative harvesting methods, and especially those cost variables readily controlled by timber growers and harvesters.

One of the most influential and controllable variables is the timber itself. Forest managers can, and do, vary cutting conditions considerably by how they mark timber for sale. Though the foresters may be interested chiefly in improving their stands and building up growing stock, they become involved with the loggers' problems willy nilly.

For one thing, stumpage returns are likely to be affected if cutting conditions are below average. For another, timber growers stand to benefit more from an increasing demand for logs and bolts than from a declining one.

The forest manager, after all, has some choice. In marking timber today, and in planning future stocking, he can well afford to consider how cut per acre, mean tree size, and the like affect labor productivity. The bond between timber growers and loggers needs stressing. Regardless of pulpwooding improvements, cutting conditions are likely to influence costs indefinitely.

The commonplace mark-leave timber cruise can serve not only growers and producers but also those interested in conducting logging studies. These tallies usually include the di-

ameter of each tree marked and the number of its bolts, together with an estimate of the acreage to be cut.

#### Independent Variables

These few measurements can be converted to a large number of independent variables that make possible a more penetrating analysis. For example, some of these variables, on a per-acre basis are:

- (1) Number of trees (N)
- (2) Sum of the tree diameters (SD)
- (3) Sum of the squares of tree diameters ( $SD^2$ )
- (4) Number of bolts (L)
- (5) Sum of the products of each tree's diameter multiplied by the number of its bolts (SLD)
- (6) Sum of the products of each tree's squared diameter multiplied by the number of its bolts ( $SLD^2$ )

Of course, item 3 is analogous to basal area and item 6 to cords per acre. These six factors can be altered to such functions or combinations as  $1/N$ ,  $SD/N$ ,  $SD^2/SD$ ,  $SLD/L$ ,  $SLD^2/SLD$ . These functions are related to the time it takes loggers to go from one tree to another, to average stand size, and to dispersion in average stand size. An estimate of total  $SD^2$  (basal area) per acre, including the marked trees, would also be useful.

With these variables we can unmask and evaluate the cost-influencing timber characteristics that are aggregated in such factors as cut per acre and basal area. The various functions and combinations can be used to test the effect of diameter and its dispersion on productivity. Some of these items will be most useful for studying felling, bucking, and limbing while others will be best suited to an in-

vestigation of bunching, loading, or hauling costs.

Among other things we could determine how man-hour productivity is affected by the initial basal area and the amount cut. In each case, the cost influencing timber characteristic is somewhat controllable in today's timber and will become more so as management develops heavier stands with more marking alternatives.

#### Testing Various Methods

For testing pulpwooding methods, a range of timber characteristics can easily be created on relatively small plots of known size. Thus, in comparing stump loading with pallet systems, each system would be tried in about the same range of cutting conditions.

In this way, the conditions in which each method has an advantage could be determined. In some situations, hand methods will be superior for some time to come, and in others, various types of mechanization will prevail. Properly presented, evaluations of the kind we have been discussing would enable producers to upgrade their systems with confidence.

The alternatives now being considered are becoming quite numerous, and simple graphic analysis is no longer suitable. But thanks to recent developments in electronic computers, the formal regression analyses required for multi-variate problems are getting easier all the time. For instance, the Southern Forest Experiment Station's 704 Regression Program is now available in IBM libraries.

Thus, people who know little about statistics or data-processing machines can quickly and cheaply have raw data converted into hundreds of formulas involving all possible additive combinations of nine or fewer independent variables. It is fairly easy to select, from hundreds, the one formula best able to account for cost differences. Additional IBM programs are available for covariance analysis and linear programming, which also have a place in logging studies.

#### Cost-Study Benefits

We are now far removed from a do-it-yourself framework. Yet what we have been discussing is at a fairly

primitive level. Research techniques are already at hand for evaluating cost factors that today might appear academic. A mere compilation of procedures and principles in the field of logging cost control would fill several large volumes.

It should be clear that we cannot write a simple generalized study plan that really does justice to pulpwooders' problems. The barriers are the differences between producers, their crew organization, machinery, operating terrain, and timber types. Specific plans have to be developed for specific operations.

Since the objective is to increase over-all productivity, the methods of above-average producers have to be studied, possibly improved, and made available to others. Further gains could come from an industry-sponsored program of machine development and experimental logging.

#### Cooperative Studies

Now, in view of the multiplicity of choices, how can effective cost studies be made? If the leadership is to come from industry, as I believe it must, one approach is to undertake cooperative studies with the various regional forest experiment stations and academicians who are interested in logging.

They have study techniques at their fingertips, and know when to use a surgeon's scalpel and when a well-sharpened jackknife will do. They can be counted on to be interested in speeding the acceptance of improved methods. Since their position requires impartiality, their recommendations should carry weight with both timber growers and loggers.

Nevertheless, there are some logging cost items in which companies can and probably should go it alone. The industry has already convinced railroads to build improved wood racks and make chip-car conversions. Another notable example is the development of mechanized woodyards.

One item that can stand some real improvement is safety. If Louisiana is typical, something like 50 cents is paid on each cord for Workmens Compensation fees. Further, many accidents ruin or damage valuable equipment. For the South, the accident toll comes

to many millions of dollars annually added to pulpwood costs, not to speak of human suffering.

An investment in a safety program might pay real dividends. To be sure, it is difficult to get the men to wear safety clothing and acquire safe habits. But it could be done.

Two goals might be achieved by inducing a small group of workers to use safety devices and pairing them off with non-users operating in similar timber. First, such a study would show how much—if at all—safety methods and devices impair production. Second, a measure of accident reduction might be had, with implications for reduced compensation fees.

Among other items for industry's attention are severance taxes and axle-weight limits for truck hauling. On these and kindred matters, the industry is perhaps best able to educate legislative committees.

#### A Continuing Need

In closing, let me echo the late Professor Matthews: savings in logging costs arise first through selection of suitable equipment and methods. Equipment is expensive and it is certainly not possible for small producers to own all of the types that would be best suited to all sorts of conditions. Once equipment is acquired, the operator is faced with the task of using it at near maximum efficiency.

But constant change is the norm. Experience is invaluable in meeting problems of constant adjustment. Yet, even experienced pulpwooders need to be kept fully informed as to what the alternatives may be. The rapid advance of mechanization in logging compels the use of equipment for which no more than theoretical performance data are available.

Analytical logging-cost studies should help producers to adjust to changes both in the timber supply situation and pulpwooding systems. Today's top-notch producer gets out about 400 cords per man-year. With present know-how alone a producer should be able to get out 1,000 cords per man-year.

The simple cost study is fine for the producer, but the more penetrating analyses could be even more of a bargain for the industry.

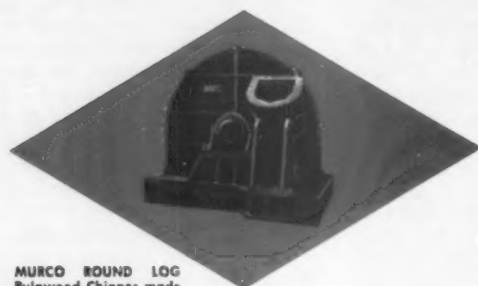




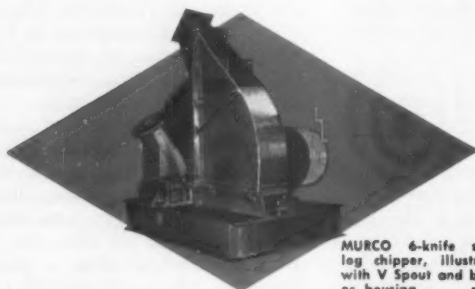
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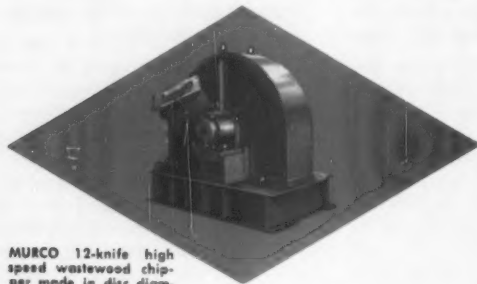
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# Four Ways to Value Forests

but none is satisfactory alone. Management needs estimate which is reasonable in order to make financial decisions

By **ALBERT C. WORRELL**  
Associate Professor,  
Forest Economics, School of  
Forestry, Yale University

• Wood is essential to the pulp and paper industry. In the long run, someone will have to grow it. The supply of naturally-grown wood eventually will be exhausted or at least reduced to less than what the industry will need. Many small landowners may never become confirmed timber growers. So it probably will get progressively harder to buy enough wood. A pulp company which wants security will have to grow a large part of its own requirements. This means that forests will be an essential and permanent part of any future pulp company operation.

Growing timber on a permanent basis depends heavily on capital. The labor requirements are quite small. Most of the labor which does go into producing a crop of wood is used to harvest it rather than to grow it. The direct operating costs are relatively small in timber growing because Nature furnishes the raw materials and the energy. But a relatively large capital investment is necessary. The major expense is buying and developing the land and growing stock for sustained wood production. Forest properties are going to form a substantial part of the total investment of pulp and paper firms in the future.

Everything points to a significant relationship between the forest investment of a firm and its over-all profit picture. Whether a given profit is large or small depends on the investment made to earn that profit. And when a firm has large capital investments, its total profit may be affected more by changes in the value of those investments than by changes in its direct operating revenues.

Most corporations with timberlands are operating them as only one part of a larger business. They also own manufacturing plants, transportation and sales facilities, and sources of other raw materials. The owners and managers are not primarily interested in growing wood. They are interested in what the forest properties can contribute to the total financial picture.

Forest properties may contribute

A. C. Worrell



financially in three ways. They may bring in direct profits from outside sales of forest products. The forests may form a subsidiary enterprise and sell part of their output in other channels than those followed by the company's main products.

Second, the forests furnish raw material for the main manufacturing enterprise. They form an integral part of the whole productive organization. Growing timber is the first step in producing the final products.

Finally, the forest properties may add to the value of the corporation's assets. They might be considered as an investment for long-term growth. The major change in value will result from the development of growing stock on the property. Not many paper corporations are likely to buy forest land and develop it with the ultimate aim of selling for a capital gain. But they will gain through the increased value of their assets.

## Questions from Management

At the level of management which views forest properties as merely a part of the total corporate structure, three kinds of questions may arise.

## A Financial Look at Forestry

Albert C. Worrell, associate professor of forest economics, Yale Forestry School, led off a panel discussion on finances and forests at APA's 1958 annual meeting in New York. He outlined the basic relationship between forest inventory data and profit or loss from timberland management to corporation finances.

Following his comments, experts in other financial fields gave their viewpoints of forestry financial problems. Their papers follow on these pages. They were:

Brandon J. Meagher—the accountant's viewpoint.

Brady O. Bryson—the taxation viewpoint.

Eli Ferguson—the investment viewpoint.

The first is: How satisfactory is the relation of our forest property to our over-all raw material procurement program?

Are there possible sources of raw material which would cost less than operating company forests? Such sources must not just be cheaper right now, but must be permanent and average less over the long run. Management needs enough information to take this long-run viewpoint.

By contrast, would it pay to increase the proportion of our wood needs being met from our own properties? This also is a question of averaging out better in the long run. Company wood production might be increased by expansion of timberland holdings or by more intensive management of the properties now owned.

## How Much Forest is Enough?

Second, management might ask: How satisfactory is our over-all forest investment? Do we have just the right amount of forest land and timber or should we have more or less?

One aspect of this question is how the earnings of the timberland units compare with those of other company assets. Are the returns from some units so low that the company might better dispose of them and invest the proceeds elsewhere? By contrast, are there attractive possibilities of direct income from forest properties? Might it pay to expand the forest holdings as a subsidiary activity?

Another aspect is how well the forest properties are balanced with the rest of the company properties. Might a small additional investment in forestry enable the company to expand its processing activities profit-

ably? Or, does the company own too much timberland for the processing capacity it now has? Can the whole productive organization be brought into better balance by adding or disposing of forest properties?

#### Are Forests Efficient?

Finally, management might ask: How efficiently are our forest properties managed? Is there evidence that certain divisions might be managed better than they are now?

Here is an area of high-level management decision regarding the corporation's forest properties. The decisions which are made will affect the over-all financial picture of the company because the investment in land and timber is so large. These are financial decisions and must be based on financial information. How can management get this information?

Four items will give a complete picture of the financial condition of the forest properties. They should be available for each property unit which is important enough to justify separate analysis.

#### Financial Picture

First is a statement of the current annual income. This should be the income actually earned by growing timber. The costs of harvesting and selling should be subtracted. This will consist of income from products sold outside the company and from wood furnished in the processing plant.

Second is a statement of any change during the year in the capital value of the property. This includes appreciation in value due to timber growth and to cultural activities such as planting. And it includes depletion due to harvesting and to losses from fire and other agencies.

These two statements give a complete picture of the actual gross earnings of the forest properties during the year.

Third is a statement of the total cost of operating the forests for the

year. These are timber growing costs. Subtracting them from the gross earnings gives the net earnings of the property.

The kind of return which the company is getting on its timberland investment is shown by a comparison of the net earnings figure with this statement of the investment.

Such statements would enable management to make decisions about company forest properties. But their preparation is complicated by the nature of timber growing. A forest is not the same kind of productive asset as a pulp mill. It does not necessarily depreciate with time and use. It is not the same as an oil well either. Its total value is not necessarily depleted by harvesting wood from it. The forest is a biological asset—it grows. So in many cases it actually appreciates in value with time and use, and this leads to peculiar financial problems.

#### Values Appreciate

Imagine that you have purchased a 20-year-old stand of Southern pine containing 10 cords of pulpwood to the acre. You go away for five years and when you come back there are 20 cords. You remove five cords in a thinning and five years later there are 25 cords to the acre.

Obviously the price which you originally paid for this stand does not tell you what it is worth today. And the five cords you sold from the thinning does not measure what your investment has earned in the 10 years.

Most wood-using corporations will try to develop their forests to produce a sustained yield of wood. The growing stock in such forests will include trees of all sizes. If this growing stock were perfectly regulated, enough trees could be cut each year to produce some definite amount of wood.

The remaining trees would then grow enough that at the end of a year, the growing stock would again be in the same condition as before the cut. The same amount of wood could be

cut then and every year thereafter. The amount of growing stock would remain constant. There would be neither depletion nor appreciation in its value as an investment.

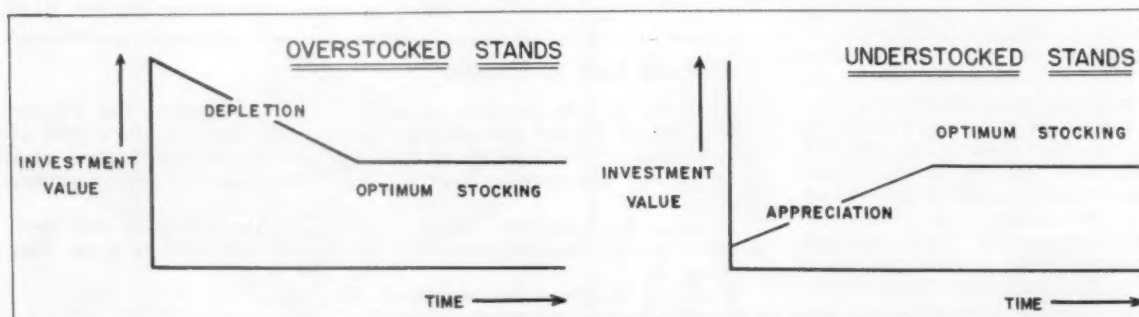
#### Changes in Growing Stock

The amount of growing stock can be increased or decreased, even if a forest is on a sustained-yield basis. In theory, there is an optimum amount of growing stock which will yield a maximum return on the investment for each quality class of land. This optimum is difficult to determine in practice. But we can tell when a forest is badly out of balance—with too much or too little growing stock.

In forests which contain a large proportion of mature timber—like many in the West the investment is excessive for sustained yield. This excess must be liquidated to bring the growing stock into balance with the land. In the process, the value will be depleted until the optimum growing stock is reached.

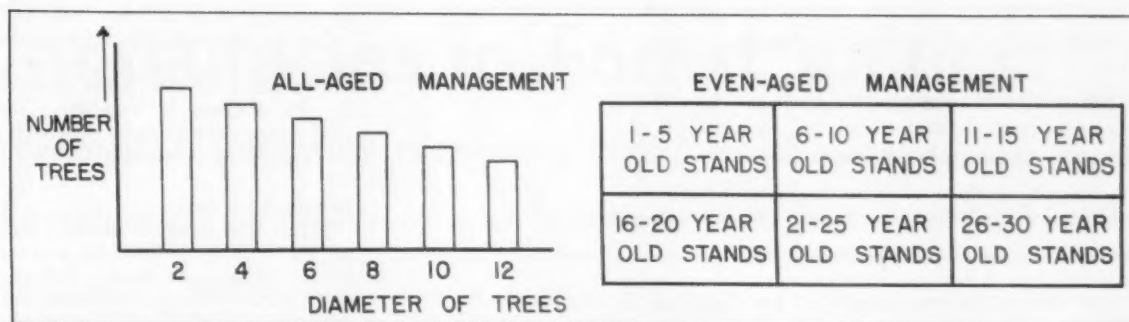
In forests which contain a large proportion of young timber or which are badly understocked, the investment is too small for optimum returns. If all or part of the current growth is left on the stump instead of being harvested, the growing stock gradually will build up. The capital value can thus be increased by retaining current earnings without investing any new capital. The growing stock can also be built up by new investment in the form of planting and cultural work.

Trees become large enough to be sold long before they reach the optimum size for harvesting. So any sustained-yield forest contains a lot of merchantable sized timber besides that which is ready to harvest. Most of the merchantable sized trees in a sustained-yield forest are not final product at all. They are more nearly goods-in-process. But they also are the productive machine which is producing the wood. The trees which are not



CHANGES IN THE INVESTMENT VALUE OF GROWING STOCK





IDEALIZED DIAGRAMS OF STAND STRUCTURES

large enough to cut for any use at present are also goods-in-process and productive machines. They too are processing the wood for future harvests. Only a part of the total value of the growing stock lies in the merchantable trees.

The amount and quality of the growing stock can be changed through cultural practices such as poisoning weed trees. Eventually this will alter the amount and quality of the annual yield. Such practices usually have their direct effect on the younger growing stock. Although they increase the investment value of the property, they may not affect its immediate wrecking value.

Cultural practices can only influence future yields and it is often hard to determine the extent of their influence. Practices which change the growing stock are also hard to distinguish from those which merely maintain it. It is virtually impossible to adjust the investment value of the growing stock accurately by capitalizing expenditures made on cultural practices.

#### Production is Flexible

Forest production is naturally flexible. The annual harvest can be varied by allowing trees to remain another year on the stump or by cutting those planned for next year. But this flexibility has a limit.

Large or continued changes in the annual cutting will disrupt the timber-growing machine. If more than the annual growth is taken, the difference must come from reserve growing stock trees. Continued over-cutting will reduce the productive capacity of the growing stock. Increasing the cut from a sustained yield does not mean just accelerated depletion as it would in a mine, but rather a gradual destruction of the productive machine.

Timber growing is probably the most drawn-out productive activity in which man engages. Virtually no expenditures show immediate returns. So a comparison of the current costs

and returns of a forest property may be very deceptive. Any valid comparison must also include changes in the investment value.

Because of the nature of forestry, the most important of the four statements which management needs for financial control are those showing the current value and changes in that value. Unfortunately, these are also the most difficult for which to obtain definite and reliable information.

The starting point must be physical inventories of the forest properties. These will include the ordinary timber cruise for information, land area, and merchantable volume.

#### Stand Structure

A complete picture of the forest investment also requires information on stand structure. This is the distribution of the growing stock by diameter or age classes. Theoretically there should be a regular distribution of stand classes to move up as the mature timber is harvested. In an even-aged forest, there would be equal areas of each age class. In an all-aged forest, there would be trees of all different diameters in the proper proportions.

Many actual forests are a mixture rather than being purely even-aged or all-aged. The forest manager has to work with what he has in the woods. But regardless of how the forests are managed in the woods, the current stand structure condition must be described in terms suitable for financial decisions. The inventory needed is one for evaluation purposes and not for silvicultural control.

#### Inventory Classifications

Such an inventory might be based on a simple system of arbitrary stand classes. These could be classified by age or by diameter limits. The number of classes should be small. Probably an age breakdown of 1- to 5-year old stands, 6- to 10-year old stands, and so on would be sufficient.

Differences in density of stocking affect volume growth and must be

recognized. Perhaps two density classes are enough. A forest managed to grow pulpwood might be divided into a bare land class and six age or size classes of growing stock, each further divided into two density classes.

Major differences in site quality must also be recognized where they exist and can be separated in the field. Growing stock of the same size and density is more productive on good quality land than on poor.

It is not my purpose to suggest an inventory classification scheme. That will have to be worked out in terms of the local conditions and silvicultural plans of each company. I just want to point out that the physical inventory must recognize the major differences in growing stock and land which affect value. It must do this simply. But it must be detailed enough to show changes in the investment value as they occur.

The information needed to describe the physical assets may be gathered by a continuous forest inventory or by periodic inventories. These will have to be repeated at fairly close intervals. Since the statements for management are needed annually, the current changes will have to be estimated between inventories. The figures can be corrected each time an actual inventory is completed.

#### Converting to Financial Basis

The real difficulties arise in converting the physical inventory to a capital or financial inventory. This might be attempted in four ways.

The first is to use the cost value of the land and growing stock as the value of the investment. Provision is made to write off part of the value as depletion when timber is cut. If no account is taken of the new growing stock which replaces the original stand as it is cut and depleted, a discrepancy develops between the cost value and the actual value of the property. This gets larger as time goes on. The value of a property which contains a lot of young growing stock when it is purchased will increase with time.

1. Cost value of land and growing stock.
2. Sales value of merchantable timber.
3. Appraised sale value of entire property.
4. Present discounted value of anticipated future yields.

#### CONVERTING PHYSICAL TO CAPITAL INVENTORIES

If timber is cut during the years, the cost value of the property may be diminishing due to depletion while its actual value is increasing materially. Capitalizing the cost of planting and other cultural work of an investment nature helps keep the cost value somewhat in line with reality.

But valuing a plantation at \$10 per acre because that is what it cost to plant does not give a very useful idea of its value when it is 25 years old and contains \$100 worth of salable pulpwood per acre. The weakness of the cost value approach is that natural growth which brings about major changes in value does not show up anywhere as a cost.

##### Value at Stumpage Price

A second method is to value the merchantable timber at the price it would bring as stumpage. A large company could sell all of its mature timber only at a considerable sacrifice. So the going market price is a better estimate of the real value of the timber to the company than the price it could get in a distress sale.

Regardless of the price used, this method gives only a wrecking value for most of the merchantable-sized growing stock. A six-inch pine tree may have a sale value for pulpwood of only 16¢. But if the tree is growing at such a rate that its value will increase by 10% each year, the 16¢ figure is not a very good estimate of its value as an investment.

##### Appraise at Sale Value

A third method is to appraise the sale value of the entire property. Huge properties could actually be sold only at a sacrifice price. But their value to the corporation as a producing asset is much greater. This might be indicated by the prices paid for similar land and growing stock in smaller sales in the locality.

Separate sale values might be determined for each class of growing stock and the total of these taken as the value of the entire property. This would be a subjective value but one for which considerable supporting evidence usually could be obtained.

##### Discounted Future Yields

A final method is to calculate the present discounted value of the anticipated future yields from the property. Each existing stand class can be projected into the future to the time when it will be ready for harvest.

A fairly accurate estimate can be made of its volume at that time. Current stumpage sale prices can be used to place a value on this volume. The costs of carrying the present stand up to the time of harvest can be estimated and accumulated at interest to that date. Subtracting these accumulated costs from the sale price will give an estimate of the net return at harvest time. This can then be discounted back to the present at an acceptable rate of interest. This is a perfectly sound method in theory, but it presents some difficulties in application.

None of these methods is entirely satisfactory by itself. Management needs a reasonable estimate of value which can be used in making financial decisions. Since value is an ephemeral concept, there is no absolutely correct measure of it. The important thing is that the values obtained should be consistent.

Estimates might be made by all four methods and reconciled as well as possible to arrive at usable value figures. The process might be to determine a "standard" value for each class

of growing stock. If the "standard" values for each class bear a reasonable relationship to those for the other classes and if the total value obtained for the property by combining the class values appears to be reasonable, they should be satisfactory.

##### Standard Values

This might produce standard values, for example, of \$100 per acre for 26- to 30-year-old stands, \$66 per acre for 21- to 25-year-old stands, and so on. After the physical inventory has determined how many acres of each stand class are present on the property in a given year, the total investment can be calculated by applying the standard values to their respective acreages.

When an acre of 30-year timber is cut and converted to bare land, the capital investment decreases by \$100. When this acre is planted and becomes part of the 1- to 5-year age class, the capital investment increases by \$12. When an acre of 25-year-old timber grows into the 26- to 30-year class, the capital investment increases by the difference between the values of the two classes, or \$34. If an acre of 16- to 30-year-old timber is killed outright by a severe fire, the capital investment decreases by \$43.

Adjustments like these would not be made acre by acre. The physical inventory would produce total figures each year for each class. The financial values would be applied to these totals and an ultimate value for the property investment in that year calculated. If such value figures were carefully developed, the total investment estimate should be accurate enough to serve its purpose.

This discussion has been frankly exploratory. In order to make the problems clear, I have had to suggest some approaches to their solution. You should consider these more as illustrations than anything else. It is going to take a lot more study and trial and error before really satisfactory answers are developed.

I have tried to look at this subject from the viewpoint of internal decision and control. The management of a corporation in accounting for its stewardship also has to consider various legal and institutional requirements. These requirements must be met but they may not furnish a very good basis for some of the important decisions which must be made. The form of accounting required for compliance with the federal income tax regulations seems to me to be an example of this. What may be needed is a separate analysis of the accounts for the specific purpose of internal financial control.

Age Class of Growing Stock	Value Per Acre
Bare Land	0
1-5 Years	\$ 12
6-10 Years	\$ 18
11-15 Years	\$ 28
16-20 Years	\$ 43
21-25 Years	\$ 66
26-30 Years	\$ 100

#### HYPOTHETICAL "STANDARD" VALUES FOR GROWING STOCK

# Inaccuracies in Forest Values

revealed in survey by accounting firm. Depletion charges are questioned; also cost problems arise in cutting

By **BRANDAN J. MEAGHER**  
Partner, Price, Waterhouse & Co.

● Accounting, of course, is not an exact science. In many industries there are problems in preparing a balance sheet that fairly presents a financial condition on a given date, and at the same time furnishes an income figure for the year. Part of the difficulty arises from the arbitrary selection of a year for the purpose of reporting income.

Essentially, accounting tries to match costs and revenues. For this purpose, an amount paid for standing timber represents a charge which must be allocated over the revenue that timber will bring in. There has been some sentiment in recent years for using current values rather than cost for the purpose of computing this lessening in value of an asset whether it be in the form of depreciation or depletion.

The argument put forth in favor of current rather than historical cost is that the latter fails to provide the funds for replacement. That is certainly true, but providing funds for replacement of properties is an entirely different problem and one which cannot be solved by placing some of the cost of future acquisitions against current revenues. Hence we find few companies that have actually recognized current values in their financial statements.

In extraction industries, the problem of matching costs and revenues is aggravated by the inability to measure the depletable asset with enough accuracy. In a woodlands operation, the problem is compounded by the inability to accurately forecast the growth that will take place during an indeterminate income period. These factors sometimes result in woodlands being carried at very nominal values. What can be done to minimize the distortion?

An accurate inventory of growing timber as of acquisition date is a good start. A value should be assigned to non-merchantable timber and to sawtimber. The latter is very often cut quite soon after purchase to get the acreage in shape for pulpwood operations and to realize part of the purchase price. If the values assigned to

these segments of the acquisition are not reasonable, distortion results almost from the beginning.

## Continuous Forest Inventory

Establishing and maintaining a sound analysis of the asset value represented by woodlands can be accomplished for existing properties by use of the continuous forest inventory method or by periodic recruises. The continuous forest inventory method appears to furnish much more reliable and timely information than can be obtained from a recruit.

For some reason, accountants have been slow to realize the value of the CFI method. A survey less than two years ago showed that only one company of eighteen circularized measured increment statistically for accounting purposes, although five companies used statistics for forest management purposes. Ten companies used periodic recruises and five used a percentage of opening inventory for accounting purposes.

As you know, the accuracy of information obtained by statistical measurement varies with the number of samples. I have heard it said that accuracy within 10% can be obtained from one hundred plots for a unit of 30,000 to 60,000 acres.

It actually cannot be stated as simply as that, because the variable characteristics would have to be taken into account for each such unit and presumably would differ somewhat. However, assuming one hundred plots to be adequate, if an accurate inventory is taken of these control plots and the data transferred to punched cards, we can obtain reliable accounting information for computing increment and depletion.

This same information could be used to compute the value of the investment in woodlands. Computation of such a value is certainly a logical procedure for management to follow.

It is true that some of the figures used for labor costs when projected even a few years must be used very carefully. I have tried to visualize such a computation ten years ago and wondered how well most of us could have predicted present costs and interest rates. Yet this difficulty in refining our estimate should not be a real

roadblock. However, management would have to accept the amount for what it is and draw its conclusions accordingly. Certainly this is no greater than other problems that would arise.

For example, how does the company's investment in other properties, such as pulp mills or paper machines, rely upon the investment in woodlands for protection from the standpoint of guaranteed source of supply? Professor Worrell referred to efficiency in forest management. I would hope that the accountant could work very closely with forest management to provide and interpret data which would tend to increase efficiency.

Certainly where CFI is used for both forest operations and accounting, we should achieve maximum benefits. The utilization of information made available by accounting personnel as a management tool has proven invaluable in many industries. There is every reason to expect that similar results can be obtained in this industry.

## Contributions to Profit

Professor Worrell also referred to the financial contribution which woodlands can make to the company in the form of profits. I would like to comment briefly on some of the problems involved in determining profits.

First of all there is a question as to the accuracy of our depletion charge. But assuming we have done our best in that respect, there are other areas that can create equally difficult problems. For one, there is the matter of cutting.

If depletion is computed for individual tracts, you can readily see that an operator could cut from the tracts with low rates of depletion and avoid those tracts which would result in a higher cost in the form of depletion. If we go to county or state groupings as some companies do, we tend to average out the depletion rates and reduce the temptation to cut from favorite locations.

Some companies go even further and use a uniform depletion rate for all properties. Use of the wider groupings creates problems of internal control that are not present when individual tract records are kept, in that variations from desired operating pro-



cedures are not as easy to spot from the accounting information available.

For these reasons, the majority of the companies included in the survey I mentioned earlier have formed arbitrary groups for accounting purposes which closely match the groupings de-

sired for forest management purposes. This has the logical advantage of taking a middle ground on accounting which coincides with the desired grouping from an operating viewpoint.

In closing, I might emphasize that I have tried to keep inside the techni-

cal accounting phases of forest inventories, but you can well realize the large part that tax considerations play in all our business decisions today. This vital tax role has considerable effect on the route one cares to travel for solving accounting and operating problems.

## Some Taxes Are Out of Line

Historical cost vs. current financial conditions. Question of capitalizing forest expenses for taxes also discussed

By **BRADY O. BRYSON**  
Attorney, Morgan, Lewis & Bockius

● Perhaps nobody on this panel is going to admit that he is an expert. I can't deny some familiarity with tax matters, having practiced in field for about 20 years. But I certainly could use, at this moment, a much greater knowledge of the details of forest management and the techniques employed in securing and interpreting data on forest lands as operating properties.

Professor Worrell's remarks have been most enlightening, particularly the emphasis he has placed (quite properly) on the fact that forest properties are never static. Physical change (growth, cutting, fire and other losses, etc.) proceeds apace, constantly altering the condition of the property and, therefore, its financial and business characteristics.

In addition, independent external economic influences—using such term broadly to include all economic factors affecting earnings predictability—also vary continuously. The interaction of these two variables, namely physical change and economic influences, makes financial planning impossible without current data in adequate form. Professor Worrell has suggested the need for such data and how they may be obtained.

### Data for Financial Planner

By and large the financial planner is not primarily interested in what you paid for your timber. He wants to know, as exactly as you can tell him, what you have on hand, the figures at which it is appraised, what it would cost to procure it elsewhere, what it can be sold for, what it can be expected to produce in the future, and what it will cost to get the production

and realize the values you indicate—as well as a hard-headed evaluation of the current yield.

### Taxes Based on Cost

The tax law, in contrast, leans heavily on ancient history. Historical cost is of tremendous significance in tax matters. Forest operators are given depletion allowances for tax purposes, and these allowances are designed strictly as cost recoveries, or, in some cases, recovery of March 1, 1913, value where the property was acquired and appreciated in value before that date. Accordingly, the actual cash investment, although made years ago and although totally out of line with the forest asset values currently employed in the business, is of prime importance.

The tax approach of cost recovery is consistent with the general principle that unrealized appreciation and depreciation are not taken into account for tax purposes, so that the computation of gain or loss at the point of realization must be made by reference to historical cost.

It may be noted, however, that in the field of tax depletion, one finds very marked deviations from this rule of cost recovery. For many years, so-called discovery value depletion, which was not based on cost, was allowed in the case of certain natural resources. And the present statutory percentage depletion allowances for oil and many minerals are based entirely on current income from the property and bear no relation to historical cost at all.

Perhaps it will be possible some day to bring tax allowances for timber depletion into line with prevailing financial conditions, as would be the tendency if based on income from the property rather than historical cost. The tax law does not totally ignore

change in the physical condition of the property, however, nor is it totally uninterested in current values.

### Current Value for Capital Gain

Current value is a crucial factor in the measurement of capital gain under Section 631(a) of the Internal Revenue Code. When timber is cut and the taxpayer elects to have that section applied, the depletion rate or cost basis of the cut timber is compared with its value as standing timber at the beginning of the year in which cut. The spread is taxed as a capital gain, and the value so ascertained becomes the cost of the timber for subsequent inventory purposes.

The tax system thus requires a determination of value as the timber is felled, and this is one of the most fruitful sources of disagreement and negotiation with the Internal Revenue Service on income tax audits.

Also, the depletion rate, although primarily based on original cost, is not considered a fixed figure. The physical changes which have been stressed here bear directly on the depletion allowance. As timber is cut, the depletion base or cost is consumed. So also in the case of fire losses and other casualties.

On the other hand, the growth in the stand replenishes the property physically, but without replenishing the tax base or cost, except to the extent that cultivation costs are capitalized, or unless a portion of the original cost was set aside for immature timber at the time of acquisition, to be taken into the base when such timber reaches commercial maturity. Neither of these considerations, in the ordinary case, increases the depletion rate very much.

The result is a changing and gradually decreasing tax depletion rate as new estimates of timber are made.

Since income tax rates have been stabilized for some years now and show little prospect of changing materially, and since timber values are steadily rising under the influence of scarcity and long-range planning, two results flow from the constant dilution of the depletion rate: (1) the tax cost of operating the timber property increases steadily with the passage of time; and (2) the depletion rate for tax purposes moves farther and farther away from the actual economic depletion in terms of current values.

#### Capitalizing Expenditures

I should like to speak briefly on the matter of capitalizing forest expenditures for tax purposes. There are, of course, many types of expenditures, not all of which are incurred in every timber operation. These expenditures

relate to forest management—tree marking expense, for example, to reforestation—seed processing, land preparation, tree planting, etc., to forest protection—fire, insect, and disease control, to land improvement—roads, bridges, culverts, and so on.

The trend of these expenditures is up, and as the cultivation of timber crops becomes more and more necessary, these costs will assume an increasingly greater role in forest finance. There is, of course, a tremendous difference between the deduction of such expenditures as operating expenses for tax purposes as you go along, and the accumulation of them for deduction as a part of the depletion allowance only as income is ultimately realized from the mature timber.

The difference is due largely to the extraordinary length of the growing

cycle, under which crops are harvested from 40 to 100 years after planting. Such a prolonged deferment of the tax allowance can very readily determine the issue whether and how much money will be spent for these purposes. The tax treatment is thus likely to affect vitally the future supply of forest products.

In the past, the dividing line between expense and capital expenditure for tax purposes has been administered on a fairly reasonable basis. There have been signs in recent times, however, of a tightening up in this connection. It would be a short-sighted policy, indeed, for the Internal Revenue Service to disturb tax allowances which have made desirable silvicultural practices possible and which will be highly important in their continuation and expansion.

## Plan to Allocate Book Values

is advocated by investor. His method would pinpoint responsibility and reveal how efficiently forests are operated

By **ELI FERGUSON**  
Equitable Life Assurance Society  
of the U.S.

● Whatever one does nowadays has tax implications, I am sure, and anything which violates standard accounting practices raises serious questions in several areas. I am nevertheless going to propose some procedures which we believe are advisable in order that you who are the chief executive officers of your companies can exercise proper financial control and accountability for results.

First, I should like to say that we do not propose that present accounting and tax calculation practices be changed. We simply suggest that certain records be maintained with respect to the forest properties which may be of memorandum nature but reconcilable with the corporate reports and which will have the effect of (1) establishing an equitable basis for distribution of book value to the various classes of land and timber, (2) calculating depletion on the basis of this allocation of book value, (3) allowing accrual of growth, and (4) providing working statements designed to show results being obtained.

Eli Ferguson



#### Appraising for Loan Purposes

When we review and appraise forest property for loan purposes, we do our best to find out what is there now, the quality of the soil, the volume and value of timber of the various classes and species, and the current volume, value, and rate of growth, all by natural land, volume, age, species, or other definable geographical areas.

We also do our best to determine what has happened in the past based on previous inventories, cutting records, and the present inventory or estimated volumes. Our detailed examination of the forest also tells us much about past management and realized growth.

Then we try to determine management's plans for the future because income for payment of the loan will be earned by undertakings of the future. This determination of future plans facilitates preparation of a workable loan agreement.

As we have pondered this assignment, we have wondered whether we should approach the subject from the point of view of the owner-investor, or of the lender-investor, and have concluded that the two viewpoints are so similar as to make little difference. You are, if anything, more interested than we in knowing how efficiently your forest is being operated. You, more than we, are interested in methods which permit better understanding between your mill superintendent, your procurement officer, and your woodlands manager.

We recognize the limitations that the tax laws and accepted principles of accounting place on what you can show in your corporate reports and we would not want this changed.

The timber account is shown at cost less depletion. It does not reflect the present worth of the timber and does not purport to do so. Nothing would be gained, in our opinion, by showing timberlands at an appraised



**HOW TO ESTABLISH ITS VALUE?** This stand of Southern hardwood epitomizes one of the many problems involved in evaluating forests. Years ago it held little value; today it is an important factor to future pulp production.

value with the write-up on the asset side offset by an appropriately labeled unearned surplus account. The present or prospective stockholder may well prefer the anticipation aroused by a carefully draped figure which reveals the nature of things and no more.

Putting it another way, forestry and flirtation may be more stimulating in anticipation than in results. We, who are so calloused to the vagaries of an appraisal, would be no more impressed than would your wife by the controlled convulsions of a strip-tease artist. But for purposes of internal control and management, periodic appraisals and inventories are essential.

#### **Records Should Show Results**

We believe also that records must be maintained which show results at proper cutoff points in the operation, particularly where responsibility for results transfers from one executive to another. For example, a sawmill may be showing wonderful results, not because of its own efficiency, but because it has benefit of low-cost wood acquired many years ago. The profits may actually be coming from the woodland. Possibly more net income would be realized if the mill were shut down and the stumpage sold on the open market.

On the other hand, if the timber is in an old, mature stand, as in the Northwest, with no net growth for the last 100 years, the woodland would not show such a handsome profit if it were charged with compound interest on the investment and expenses of holding.

Another reason for having good records of performance is so that decisions may be based on what they show rather than because of the

persuasive or dominating personality of some department head. I think you all agree that good records on all phases of operation are necessary to good administration.

Furthermore, it is well known that much is gained in efficiency, morale, and development of capable managers, if the results as shown by the profit and loss statement are broken down so that the management of every activity knows what its contribution is to the results, and more than this, knows that you know.

#### **Book Value by Classes**

The first step, we believe, toward proper management of timberland is to set up an equitable distribution of the book value between classes of land and timber. If the book value is distributed at a flat rate per thousand, as is often the case, the depletion charge is too high for low quality stumpage and too low for high quality stumpage. No meaningful records of actual earnings or return on investment are possible under such a situation. We all know that there is a great spread of values for both land and timber within a forest.

An equitable distribution of book value can be accomplished by an inventory and appraisal which establishes the current value of each component. If the current value adds up to 150% of the book value, the basis for each component would be two-thirds the current value.

Since Dr. Worrell has raised some questions on the basis of an appraisal, I think a few words on this subject might be appropriate. He has pointed out that there are several approaches to value and has concluded that the method used is not so important as the result—the principal objective

being consistent or equitable distribution of values. Thus he has proposed a "standard value." We suggest that the appraisal reflect what the various classes of land and timber could be sold for in the market. It is about the only defensible method of appraising anything.

#### **Values Made by Sales**

Values are not made in anyone's mind or by any theoretical calculation of what may happen in the future. Values are made in the market place by buyers and sellers.

If you ever have to defend your appraisal in a court of law, you will find it difficult to convince the judge that your values are fair and reasonable if you cannot cite a number of sales which support your conclusions. Furthermore, growing trees can be replaced with similar growing trees. Manufactured wood can also be replaced by other manufactured wood.

There is, in our opinion, never any reason to consider that the growing tree today has any greater value than what it would cost to purchase an identical growing tree at the time. Anticipated profits (or future growth) are not properly attributable to present worth. Naturally, a profit forecast is a vital factor for consideration in acquisition as well as management policy of the timber and financial management of the company.

The appraisal report should be supported by the inventory and maps and should describe and locate each value class, showing for each the current value per unit and total, and the distributed book value per unit and total. After book value has been distributed in this manner, depletion would, of course, be calculated at the per unit book value figures.

If your depletion records for tax purposes are on some other basis and it is deemed inadvisable to change the distribution of book value for tax purposes, this would, of course, entail a double calculation to determine depletion. But as stated before, no worthwhile statement of actual earnings from the forest can be obtained unless the depletion rate is gauged to the relative quality and value of the timber being depleted.

One might argue that since this may be only a memorandum record for purposes of managing a forest and judging results, why not use market values instead of allocated book value. This, of course could be done, but it would tend to obscure profits and losses on the investment.

#### **Adjustments for Growth**

Since we all know that most forests grow, in order to have a complete



picture, we must allow adjustment for growth. For various reasons, this should probably be a memorandum account. I am sure that the foresters can determine the volume of growth by the various classes of timber, but converting this volume to a dollar figure presents problems.

We would suggest that growth be priced at the per unit book value established in the appraisal report for the particular class of timber. In the event of development of sizes or classes beyond those appearing in the report, a comparable figure could be arrived at and should be used.

The woodlands manager should be charged with the responsibility for growing wood at the optimum rate measured by the ratio of the value of the growth as calculated above to the book value of the growing stock and of the land on which it is located. This will often mean production of several kinds of product, even including poles and piling. We have never seen, nor do we expect to see, this ever to be fully achieved. But this certainly means that as the value of the growth in relation to the value of the growing stock and the land begins to decline, the timber should be cut.

Since this paper is supposed to be devoted to the growing of timber from an investment standpoint, I think this is perhaps the most important point that I have to make. The remainder of this discussion is devoted to how one arrives at this figure. Naturally, consideration must also be given to the expenses such as real estate taxes, cost of supervision, improvement, and protection.

Consideration of the rate of growth will indicate to the woodlands manager what timber should be harvested, and he should be required to outline at the beginning of each year the timber which will be available. Presumably the mill will have first call on that timber, and sales to the mill should be at prices comparable to those being paid for outside wood.

#### **Cost of "Insurance" Wood**

One reason for owning timberland is so-called insurance against wood shortages at the mill. Hence at times the mill may call for wood in excess of that which should be cut for best returns from the woodlands. In that event, the price charged the mill should fully recognize that growing stock and, therefore, growth, is being reduced. Such wood may actually be costing the company twice its market value because of lost future growth. The cost of such "insurance" is measurable and should be known.

Likewise, if the mill does not take the wood agreed upon, sales should

either be made on the outside or some adjustment made with the woodlands account if it is determined that the timber should be held for future emergencies since future growth may be lost from this practice.

#### **Charge Interest on Forests**

We have made only passing reference to the costs of owning, supervising, and protecting timberland. They, of course, should be charged to the woodlands account along with an allocated amount for company overhead. This leaves one very important cost element which we have not discussed.

Dr. Worrell has pointed out that the investment in land and timber may be high compared with the operating costs, and that time is exceedingly important. The accepted measure of the combination of time and money is interest.

I believe in order to keep the woodlands management constantly aware of the cost of time and money, it should be charged interest, again in a memorandum account, for all funds invested by the company in the woodlands division.

I do not have a formula for determining the rate, but it should bear some relationship to the worth of the money to the company. The account with the company would thus show a liability for the amount of the original investment which would be increased by the annual interest and advances for expenses. It would be decreased by the amount of sales.

Interest for the year would be charged on the balance of the company account at the beginning of the year. Net earnings of the woodlands division would thus be an amount in excess of interest, and would show a truer picture than if interest were excluded.

#### **Summary**

In summary, we are not advocating any change in corporate statements and tax accounting, but for purposes of placing financial responsibility for woodlands management where it belongs—with the woodlands managers—that book value be distributed on the basis of an appraisal, depletion be calculated on the same basis, growth be accrued at the unit rates used for book value, sales be calculated at the market price with proper additional allowance for emergency cutting, and because of the importance of time, interest be charged for all company funds used by the woodlands management.

The essential summary figures should be distributed to the blocks or sectors of the forest as set up in the

appraisal so that the manager can judge the results for a restricted area. He needs this because almost all improvement will come by reason of his attention to particular stands of timber.

Changes in utilization practices, products, as well as cumulative errors in growth estimates will, in time, make a revamping of the whole structure necessary. Perhaps a complete review by an outside firm should be contemplated every ten years. Of course, a continuous forest inventory or an adaptation should be ideally suited for keeping internal records up to date.

At times sacrifices must be made by everyone for the benefit of the company as a whole. Such sacrifices are taken in stride if everyone understands the reasons for them. It is well known that timberlands can be used to regulate profit or loss, and they should be used for that purpose when necessary. As a matter of fact, company-owned lands may have their greatest usefulness in this area. You all know that, aside from adequate working capital and proper ratio of debt to net worth and earnings, a steady profit record is your greatest asset in borrowing money at favorable rates. One bad loss year in ten may make it impossible to borrow the money that your average earnings would warrant. It may well be that more is gained by being in position to command favorable rates on borrowed money than to obtain the highest efficiency in timber production.

#### **Benefits of Records**

It has been with considerable misgivings that I have outlined our thinking on this subject. No doubt many of you are doing this and much more. Also, I recognize that such records cost money, but I am kind of warmed up on this subject because, together with several others in our company, I worked off and on for three years developing such a system for our investment operations. As a result, we now have statements showing operating results for every class of investment.

In the case of mortgage investments, we have these statements not only for the three departments operating in that field, but also for each of their 80 branch offices. In our Farm Mortgage Department we have such statements for each of our ten branch offices and each of the 100 field territories, which report to the branch offices. It costs some money to produce these reports, but the benefits obtained in sharpening up the men to their opportunities and responsibilities far outweigh the cost.



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**Panel:**

## **Is Education-Industry Cooperation Producing Qualified Industrial Foresters?**



**PANEL MEMBERS:** (From left) J. J. Ennis, Champion Paper & Fibre; Paul Dunn, St. Regis; Bill McAdam, Champion International, chairman; George Abel, Owens-Illinois; S. G. Fontanna, Univ. of Michigan; R. J. Preston, North Carolina State College

# **Foresters Need Business Ability**

**Speaker launches a round table discussion on education-industry cooperation to produce better industrial foresters**

**By GEORGE W. ABEL**  
Owens-Illinois Glass Co.

● The question that forms the title of this panel discussion, "Is Education-Industry Cooperation Producing the Best Qualified Industrial Foresters?" does not, I am sure, introduce an entirely new subject. Within the broad scope of the subject there have been innumerable discussions focused upon somewhat vague attempts to define what we think these desirable qualifications are, and, at the same time, formulate practical selection and training mechanisms by which they can be obtained in our forestry personnel.

While the problems of producing qualified foresters are as old as forestry itself, the evolution of industrial forestry, especially in the pulp and paper industry, has given a somewhat new posture to the entire profession. Never before has an age placed such a premium upon various combinations of business and technical abilities and never before has there been such a need and competition for these abilities.

In this time of rapidly accelerating demand for and application of technological advancements, the problem of supplying our industry with better qualified foresters is assuming increasing importance and urgency.

### **Major Employer of Foresters**

The American pulp and paper industry has, within a relatively short

span of years, grown into one of the major employers of professional foresters. While totally accurate and up-to-date employment statistics are lacking, available figures show that there were more than 7,000 graduate foresters employed by forest industries in 1957 and that the number thus employed has doubled in the past five years. Today, over 40% of our 17,000 graduate foresters are employed in industrial forestry, more than employed by the federal government. As usual, however, mere numbers do not tell the whole story.

Along with this numerical increase, we have been privileged to witness substantial changes in the character of industrial forestry employment and the responsibilities that foresters are being called upon to assume in the industry.

Foresters have always been and will continue to be responsible for standard operating procedures dealing with tree planting, fire control, logging, pulpwood procurement, timber cruising, etc. Above and beyond this, however, industrial foresters are being required to assume increasing responsibilities for integrating their work, their planning, their specialties into the broad corporate management framework of large industries.

Industrial forestry has now matured to the point where it is an extremely costly and fundamentally vital part of our industry. Industrial investments in timber, timberlands and management expenses have reached a point where

they often approach those of the mills and plants they are supplying with raw material.

### **Managerial Functions**

Our industry needs foresters who are not only capable of local on-the-ground, day-to-day management of these timberlands, but also men who are qualified to operate in and assume responsibilities for planning, promoting, organizing and developing forestry as a business enterprise that is fully integrated with the over-all manufacturing and marketing processes. This requires a combination of technical and business qualifications.

Among foresters who have succeeded in advancing from field technicalities into the broader aspects of industrial management, we find considerable evidence of a feeling that both their formal education and subsequent on-the-job training have not provided them with adequate opportunities to acquire the business and managerial backgrounds they increasingly need and acutely feel to be the "limiting factor" in their careers.

### **Better Qualified Foresters**

Now, to the extent that our forest industry expects our educational system to produce what it deems to be better qualified industrial foresters on the one hand, it must also accept corresponding responsibilities on the other. Fundamentally, the problem of promoting the production of better qualified industrial foresters may be



resolved into three major phases:

(1) The attraction of young men with real competence, imagination, and creative ability into the field of forestry instead of just those who have become enamored of acquiring a certain amount of "woodsy lore." Obviously, we cannot hope to further our purpose by imposing even the best of forestry education and training upon mediocre minds. First and foremost, we must be able to attract the caliber of young men we need.

(2) Our systems of educating professional foresters must at least keep pace with, but preferably be ahead of, the economic realities of industrial forestry, especially in regard to developing business and managerial abilities in addition to accepted technical standards. I do not feel that it is enough just to offer such training on a "take-it-or-leave-it" basis. It should be an integral part of the professional curriculum and tailored to establish fundamental skills in business management as they may be required by our business.

(3) Forest industry itself must as-

sume a responsibility for on-the-job, post-graduate training, not only during the brief so-called indoctrination period, but throughout the beginning of a forester's industrial career until he has actually come into balance with his capabilities. The lack of a proper industrial personnel management attitude in this respect can easily negate even the combined results of the best educations and the best men we can possibly bring to muster.

Because the question asked of this forum is not a simple question, there can be no simple answers. The true answers, if they can be found, lie in the minds of men who have enjoyed a broad and responsible experience in both education and industry. We are privileged to have with us this morning a panel of such men, representing both the universities in which our foresters are trained and the industry which employs these same foresters. All are widely experienced and eminently qualified to provide us with an authoritative and informative appraisal of the various aspects of the situation confronting us at this time.

gineering—the use of advertising and publicity media. To date it is my feeling that forest industry, except for a few independent efforts, has done little.

Forest industry, too, can aid in attracting the better student by making grants of freshman scholarships in amounts of at least \$500, renewable yearly if the student continues to do good work. Again, despite the good record of a few companies in this regard, general industry response has not been great. A variant of the general scholarship which could be very productive is the scholarship grant to sons of company employees.

#### Forestry Curriculum

Turning now to the matter of forestry curriculum, forestry schools are well aware of the desire of employers for better preparation in the fields of communications (written and spoken English), the social sciences (psychology, sociology, political science, etc.) and business (accounting, marketing, personnel management, etc.).

They are likewise aware that adequate preparation in mathematics and the physical and biological sciences is basic to work in the professional courses.

They are faced with the accomplishment of these objectives within a curriculum embracing four academic years and one summer session, since it is a fact that the majority of students find it impossible (in these days of high costs) to finance more than four years of schooling.

The result has been that within this four-year curriculum the percentage of instruction devoted to non-professional subjects has continued to increase to the point where at least half of the instruction is of this character.

Citing Michigan's curriculum as an example, of a total of 132 semester hours required for the b.s. degree, 65 hours of the curriculum are devoted to non-professional courses, 49 to professional courses, and 18 hours to general electives which the student may employ to his best advantage.

Of the 65 hours required in non-professional courses, 27 hours are in the area of communications and the social sciences—thus 40% of the basic requirements, and at least 20% and probably more of the total requirements, are in these areas. In so far as possible students are encouraged to use some of their general electives for business subjects.

I do not mean to imply by the above that forestry schools feel that the amount of instruction in the non-professional courses represents the ideal. Many of our students at Michigan come to us by transfer from

## U. of Michigan Spokesman Suggests Some Things Industry Can Do for Schools

By S. G. FONTANNA  
Dean, School of Natural Resources  
University of Michigan

● What we are discussing here today is the problem of getting the better-than-average high school student interested in a forestry career and in giving him the training which will best fit him for the career; and what the forest industry can do to help.

While it is true that college enrollments have been rising by a few percentage points each year during the past few years, competition for the man student who comes on campus among the various units of the college or university has never been so keen, nor have job prospects been so good. Competitive-wise, the engineers have been way out in front due to the tremendous publicity generated by industry; and it is a fact that students who make good engineers will also make good foresters.

What has been the reaction to this publicity particularly as it affects the better student? Let me cite an example. The University of Michigan sponsors each year the so-called Regents-Alumni Scholarships for graduating seniors in accredited high schools in the state of Michigan. Each

accredited high school is entitled to at least one scholarship each year. The scholarships cover semester fees at the university and are renewable annually. In checking the published list of scholarship winners for the academic year 1956-57, I found that better than 95% of the men were entering the School of Engineering.

#### Efforts to Inform Students

To meet this situation, considerable effort has been expended by the forestry profession to inform the high school student that forestry too offers excellent employment opportunities in interesting and stimulating work. The American Forestry Association has turned out a splendid group of articles which it has consolidated and distributed to high schools throughout the country. The Society of American Foresters has made available a new publication entitled "Forestry as a Profession" and the various geographic sections of the society, through their members, have brought the message to the high schools. The forestry schools have intensified their information and extension efforts.

What can the forest industry do to help attract the capable student into forestry? Exactly what other industry has done to attract students into en-

liberal arts colleges with three or four years of liberal arts training; it is our feeling that such students have a distinct advantage over the student with only two years of preparatory work. We have endeavored to promote a longer period of liberal arts training by entering into 5-year programs with certain liberal arts colleges whereby the student takes three years of training at the liberal arts college and then transfers to Michigan for his professional work.

#### Broad Professional Requirements

If approximately half the instruction the student receives is in non-professional subjects, it is apparent that there is not sufficient time within the four-year curriculum to accomplish as thorough preparation as we would like in the professional subjects. The professional forest manager today should have adequate training in the many aspects of the job with which he deals.

Protection is no longer just a matter of fire—insects and disease are frequently more important; desirable training in silviculture now includes soils and water and genetics as well as silviculture practices; management runs the gamut of forest surveying, mensuration, photogrammetry, logging and milling and valuation as well as management practices; utilization covers the whole field of wood structure and properties and their relation to the technology of the manufacture of products; economics as it relates both to raw material and the finished product becomes more and more important. Other desirable subjects are recreation and wildlife management, matters with which the forest manager inevitably must deal.

As a result of the time limitation in the four-year curriculum, some desirable subjects must be eliminated; the student must take this or that—he cannot take them all. The eventual curriculum, then, is a compromise, with both sides losing to a degree.

#### Why Not a 5-Year Course?

Why not a 5-year curriculum leading to the bachelor's degree? I have already cited the main and very realistic objection—the inability of the average student to finance more than four years of college. Coupled with this is the fact that the senior nowadays is quite often married, and is extremely anxious to get on the job to support his family.

For the student who has the ability and the desire, the master's program offers the opportunity to round out his instructional program, drawing from both professional and non-professional subjects. As a graduate

student, too, he will take on independent assignments in seminar and thesis and will profit from his contacts with other graduate students. As a rule the graduate student has the potential to go forward in management or research. A stumbling block for this student, however, is his inability to finance additional schooling. He is quite often married and possessed of a family.

To a limited extent forestry schools can give financial assistance through assistantships which pay the student \$1200-\$1800 annually for a certain number of hours of work; through fellowship grants; or through work on research projects. The total assistance available never fills more than a small percentage of the need.

#### Financial Aid by Industry

It is in the latter two categories of financial assistance, the fellowship and research grants, that industry can be particularly helpful. It is indeed true that the fellowship grant does not guarantee to the grantor concern that the student will eventually be employed by that concern; however, such grants constitute a definite aid in putting on the market a greater number of better-trained students.

A variant of the fellowship grant, the benefit of which will inure directly to the grantor, is a grant to the employee who is sent back to school at company expense for special training. This training may be of short duration, one to three weeks, for special work in soils, administration, utilization, etc. (practically all schools offer one or more such courses during the year), or it may involve returning to school for one or more semesters.

The second category of financial aid, that of the research grant, enables the employment of graduate students as research assistants on

specific projects. Research performed by such means produces excellent results since it is done under direct supervision of qualified staff members.

I cite as an example a three-year aspen management research project in Lower Michigan financed by a grant of funds from several Michigan pulp and paper companies through the Michigan Memorial Phoenix Project—this particular research project employed two graduate students who not only produced highly significant and useful research findings but who have since become valuable employees of Michigan industry.

Research grants may be directed toward a specific field or objective desired by the grantor. They may be of short duration or may run over a term of years. The latter type is of course highly desirable since it is difficult to do research of basic character within the period of a single year. As a rule forestry schools have adequate staff and facilities to conduct high-quality research and invite the sponsorship of research projects by industry.

I am not unaware of the fine contributions that have been made by members of the pulp and paper industry in the categories above mentioned. I only wish that their total could be multiplied many times by the entire industry.

#### Summer Employment

Turning now to the matter of summer employment of the forestry student and of possible training during the period, this is a matter which the late Earl Tinker had under consideration several years ago but which never seemed to make much headway. Summer jobs are, of course, the means of valuable experience for the student—they also give the employer the chance to evaluate the student for future employment as well as for the student to

**STUDENTS WORK OUT FINE** doing summer work in the forests for one Pennsylvania forest company. Here, a student applies debarking chemical to tree.



evaluate the employer.

Recently two federal agencies, the U.S. Forest Service and the Bureau of Land Management, have developed training programs which enlist the services of the student during one or more summers—this employment ripens into a job upon graduation.

This is not hit-or-miss training—it is a real endeavor on the part of the agencies to actually help train the student for his future job. As it is now developing, it offers industry serious competition for the available graduates.

Can industry institute like training programs? Certainly such programs would appear to offer an excellent opportunity to choose and train future employees. I know that in certain areas of the country there is now close collaboration between the forestry schools and local industry in the matter of summer employment of students; however, this is certainly not the general situation.

#### Patterns of Cooperation

Finally, I would like to say a word about "patterns of cooperation" since this phrase has been used in connection with the announcement of the panel discussion. From the information I have received from the various Northern forestry schools, I am not able to distinguish any clear-cut patterns; actually industry support and cooperation has varied greatly from school to school.

In the Pacific Northwest, industry has been generous with scholarship, fellowship, and research aid, and has worked in close cooperation with the schools in the matter of summer employment.

In the East, industry has given strong support to the chemical and pulp and paper technology programs of the New York State College of Forestry and to the industrial forestry program at Yale.

In the Lake States, Minnesota and Michigan have received moderate support from the pulp and paper and furniture industries. As a rule, however, industry support to the schools has not been great, and there seems to have been little emphasis on summer employment and training.

#### Summary

To recapitulate: in this brief paper I have tried to make these points:

1. Competition on the campus for the better-than-average student by the several units of the college or university is very keen—at present engineers hold a decided advantage over foresters. Industry could help this situation through its advertising and publicity media and through the

granting of freshman scholarships.

2. Forestry schools are aware of the desire of employers that the forestry curriculum offer more adequate training in the areas of communications, the social sciences and business, and have been increasing the requirements in these areas. Approximately half of the four-year curriculum leading to the bachelor's degree is now devoted to non-professional subjects; this of necessity limits the professional instruction. The four-year curriculum remains the standard, however, inasmuch as the average student cannot afford the expense of an additional year's schooling.

3. The master's program offers a

well-rounded program to the better student who is as a rule the student of greater potential. This student generally needs financial aid to go on into graduate work. Forestry schools can provide only a small part of this aid and here industry could be very helpful through fellowship and research grants.

4. Summer employment of students by industry is highly desirable particularly if a training program is coupled with the employment. Both the student and the employer stand to benefit since the student gains useful experience and the employer has an opportunity to evaluate the student for future employment.

## Southerner Says Industry Must Decide Its Wants Before Schools Can Do Much

By R. J. PRESTON  
Dean, School of Forestry,  
North Carolina State College

● To define the function of a forestry school, I would like to give you our faculty's definition of forestry and of the function of our School of Forestry.

Forestry is the science and art of managing the forest resource, including the propagation and development of timber stands, the conversion of forest products into useful goods and structures, and the wise husbandry of forest lands for the benefit of mankind.

Accordingly, the School of Forestry has a two-fold purpose. First, it must provide the professional education to individuals who will manage the forest resource and who will develop the orderly methods of utilizing the goods and services from it. This education must include not only a mastery of the scientific techniques of forest production and utilization, but, equally important, it must include a broad training in the sciences and liberal arts which will enable the individual to become an enlightened member of our citizenry, ready to meet the problems of his times with understanding, appreciation, and creative thinking.

Second, it must provide through research a scientific base for the most efficient use of forest lands and the efficient utilization of the products and services derived from it.

#### Cooperation at North Carolina

We are very proud of the cooperative relationship which exists between

the pulp and paper industry and our School of Forestry. In many ways we believe that this relationship is unique, not only in forestry education but in all fields of education. I know of no instance where a great industry and an institution of higher learning have worked together more closely for their mutual benefit. This cooperation has been in three major areas:

##### 1. Advisory Committees

This fall we held the sixth annual meeting with our advisory committees. No activity we have taken has done more to strengthen our program than these annual meetings.

Each year approximately 150 leading foresters representing industry and public agencies meet with us to go over the activities and programs of the preceding year and to consider problems for the year ahead.

We have three advisory committees, one each in the field of forest management, pulp and paper technology, and wood technology. Each committee meets separately during the day, coming together for joint meetings at lunch and supper. Items such as curricula content, types of training, quality of instruction, research, enrollment, finances and scholarships are freely discussed.

We in the school gain greatly by these discussions and it is a source of real inspiration to us to see the interest which the leaders in our profession take in helping to strengthen this educational program. These leaders in turn have assured me that from these meetings they have gained a better understanding of educational problems.

2. The Pulp and Paper Foundation was incorporated in 1954 to strengthen our new regional pro-



gram in pulp and paper technology. This program has been designated by the Southern Regional Educational Board to serve the entire South and it has had a remarkable development.

Through the foundation's support, we have been able to supplement salaries and launch an extensive scholarship program. This year the foundation is contributing \$50,000 in these areas.

The state of North Carolina has also been generous in providing and equipping a new building, at a cost of \$427,000, which this past fall was dedicated as the Reuben B. Robertson Laboratory of Pulp and Paper Technology.

### 3. Cooperative Research

Thirteen pulp and paper companies are currently supporting our cooperative research program in Forest Tree Improvement. Under the direction of Dr. Bruce Zobel this program has already brought forth results which may profoundly affect the future direction of forest management.

A second cooperative program is now getting underway in a linear programming study relating to pulpwood procurement.

Cooperative programs such as these have great merit if properly conducted. They make available the diversified research facilities and personnel present in major institutions of higher learning and they enable schools to strengthen their faculties and to turn out graduate students to carry on the increasingly important research programs.

### Trends in Forestry Education

There have been big changes in forestry education in the last ten years and I believe even bigger changes lie before us. We are getting more and more away from vocational type training and are improving the quality of our instruction and our scholastic standards.

Our curricula are more flexible with increasing emphasis on a strong background in basic science and the humanities. New emphasis is given to such areas as forest soils, aerial mapping, statistics and management science.

It's a lot harder to get a college degree now than it was a generation ago. Just physical appearance at a college with a minimum of achievement is not enough. Student mortality is heavy. In our school only about a third of our freshmen graduate in four years, with an additional 10% making it in five years.

This severe weeding process means the quality of our graduates is generally good. And how important is this factor of quality! All other matters

fade into relative unimportance when considering the type of forester produced when compared to the two factors of faculty quality and student quality. Both are necessary, and both have often, in varying degree, been lacking in the past.

### Help Improve Quality

There are several ways in which industry can help the schools improve quality. First, let us consider the question of student quality.

Regardless of how fine are a school's facilities and how outstanding its faculty, the quality of its graduates will be limited by the caliber of the students it enrolls.

Up to the present there has been a tendency on the part of foresters to undersell themselves and their profession. We need to get over this attitude—we need to proclaim loud and often what a fine profession we have.

Today there is a real competition for the best high school students. Engineering is greatly glamorized with all kinds of publicity calling to the need for more engineers. As a consequence they are getting a large percentage of the outstanding students, many of them boys who would otherwise have chosen forestry.

Within the last month 15 boys who entered State College as engineering freshmen last fall have requested to transfer into forestry. Most of them were average-to-good students who said they had always wanted forestry, but had been swept away by the engineering publicity. What our schools and profession needs are increasing numbers of boys with potential leadership and high ability.

### How to Reach Potential Foresters

Here are a few ways we may reach more of these boys:

1. More national publicity on the need for foresters and the opportunities available to able young men. If forest industries separately or jointly could emphasize the forestry opportunities, as do other industries such as Du Pont, General Motors and aircraft manufacturers, it would be most helpful. Many pulp and paper companies run series of national advertisements in which forestry and conservation are emphasized. Could the need for technical men receive more emphasis in these programs? If so, it would be a big boost to our profession.

2. Active recruiting by industry in the high schools where their operations are located. For the past several years we have worked closely with a dozen pulp and paper companies in joint recruiting efforts and they have been successful. Industry personnel men could be assigned to work in ca-

reer days, high school seniors could be invited to the mill towns for trips through the mill and the woods operations, and all foresters could be urged to sell high ability boys on forestry as a career.

3. There is a real need for more scholarships. College education is growing increasingly costly and many young men of ability are not able to attend college. A third of the valedictorians in North Carolina high schools do not go to college. Many pulp and paper companies do have active scholarship programs and I certainly urge companies not now offering scholarships to seriously consider whether the public relation and technical manpower advantages of such a program would not justify the expense. This is the most effective measure I know of for improving student quality.

4. Making summer jobs available to students. This has many advantages to all concerned. It gives the companies a chance to look over prospective employees and it makes the students more valuable when first employed. We require three months acceptable work experience of all students as a degree requirement. Most of the jobs, however, are public jobs in the Far West.

### Faculty Quality

The other problem of quality refers to faculty. I would prefer to go to school in a barn with the chance to study under outstanding men than I would to go to an institution with the finest possible facilities and a mediocre faculty. I think you will all agree with me on this.

The schools are facing an increasingly difficult problem to attract and hold outstanding men. At N.C. State we have been successful in building and holding a strong faculty, but it has been the major effort of the past ten years. Our success has resulted from being able to supplement the salaries of key men.

Six members of our staff now receive substantially larger salaries than the State could provide; without these supplements none of these men would be on our faculty. This alone has made the difference in our program being a strong one rather than a mediocre one. Two of these positions are endowed professorships honoring two great pioneers in forestry and pulp and paper. Dr. Schenck and Reuben B. Robertson, one is supported by our forestry foundation, and three are supported by industry.

I would like to suggest that industry consider the value of returns on methods that would help schools get outstanding faculties. This might be done through endowments or through

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research grants where the industry gets full value in addition to strengthening the program that supplies its technical personnel. Another method is through contractual agreements with faculty personnel which permits them to render their services during vacation periods.

#### What Kind of Foresters

The last point I wish to make is that industry must decide on what kinds of foresters they want before the schools can make great changes in their programs.

Our advisory committees have battled this subject around thoroughly without much agreement. Many company foresters tell us frankly that they don't know what kind of training they do want.

In this connection I was much interested in an article by Kenneth Martinson of the Puget Sound Section of SAF published in the January, 1958 issue of "Western Forester." Mr. Martinson makes a case for two kinds of trained foresters—highly trained competent college graduates and vocational foresters. He cites Norway as an example, which with 76 million acres of commercial forest land employs 600 professional foresters and 2000 vocational foresters.

Sooner or later I believe that forestry in our country will follow a similar pattern. With increasing intensity of management and with the introduction of new highly technical management tools I believe that within 10 to 15 years the industries are going to tell the schools that they want a nucleus of highly trained, very able, 5-year college graduates and in addition a larger number of vocationally trained or Ranger School graduates.

I believe that industry will tell us that among the 5-year professional men they will want several types of specialization—some silviculturists perhaps leaning toward genetics or nursery management, some forest managers with strong backgrounds in mathematics and statistics, and many in a field we today are only starting to provide training in—the field of management science with strong emphasis on business subjects, accounting, and personnel management.

As I see it, in the near future the industrial professional forester is going to need training for executive or administrative work to the same degree that he will need training in technical forestry.

In conclusion I would like to emphasize the following:

1. The present pattern of cooperation between the pulp and paper industry and the Southern forestry schools has had an important effect

upon the quality of training.

2. This cooperation should be extended to further improve quality of both faculty and students.

3. The industry must determine the kind of foresters they want before the schools can make radical changes in their educational programs.

## 72 Pulp and Paper Scholarships Given By Industry Without Strings Attached

By **PAUL M. DUNN**  
St. Regis Paper Co.,  
Former Forestry Dean,  
Oregon State College

● A discussion of industry scholarship programs necessitates some explanation of terminology. The terms scholarships, fellowships, grants and research grants, are similar in that each implies a grant of money to a prospective student or an incumbent for the purpose of aiding him to attain his objective. These may apply to either the undergraduate or the graduate student.

Research or teaching assistantships usually refer to an arrangement wherein the student is expected to give some special help to a going research project or assist with the classroom program in a minor way. These, of course, are at the graduate level and with a definite obligation of a portion of his time. The student's program is extended accordingly, generally over the second year.

Evidence of satisfactory scholastic achievement is expected from the applicant and it is generally the major factor, sometimes the sole one, in determining the selection of a student for any of the above awards. Normally, however, other factors, such as educational objectives, work experiences, and maturity are considered also.

In some instances, certain restrictive aspects of the grant, such as regional operations of the grantor, location of the institution and origin of the student, limit the applicants. The latter applies as a rule to undergraduate grants.

An example of a typical restriction is our St. Regis undergraduate scholarships that limit the applicants to students from three schools in the Southeast, four in the Northeast, and four in the Northwest, all in regions adjacent to our mill operations. Our graduate fellowship is not so restricted.

The primary purpose of all grants is to assist the student to achieve his educational objective. Normally the assistance will not defray the entire costs of his program. There are a few exceptions, but not many.

In my experience, the number of

students who really need some help is greater in forestry than in other fields. However, the students who are willing to work, and most of them are, can generally find something to do after classes and/or on week-ends. Most of the forestry schools have a tree nursery or near-by woods' operations. As a rule, the school or the university has a student loan fund from which the student may borrow limited amounts for periods extending beyond his graduation. I am certain that many of us here were helped through our college years by one or more of the above means.

A review of scholarships, et al, that are currently available at institutions offering curricula in forestry and related fields, shows that there are a considerable number at both the undergraduate and graduate levels. A recent article in the September 1957 issue of the "Journal of Forestry" gives a comprehensive listing of the available scholarships and fellowships at schools of forestry in the United States and Canada for the academic year, 1956-1957. I shall refer to these data more specifically later.

The availability or distribution of scholarships is not uniform with all forestry schools, which is understandable, due chiefly to location of the school and the interest of certain industries or individuals. This is a point of current concern to some deans.

I admit that there are top-quality men to be found in every forestry school and they should all get encouragement. However, the problem of making the undergraduate awards open to all schools or providing a scholarship for each school is one that we are not prepared to meet as yet. I feel that this situation is not unique with forest industry.

#### Classifications of Grants

Most college or university grants can be classified in four general groups, namely: Industry, Foundations, Individuals, and University. The classifications are not clear-cut, since some of the funds in many foundations and from certain individuals stemmed from industry operations. An exact analysis was not deemed necessary for the purpose of this paper.



	ALL		INDUSTRY		PULP & PAPER		LUMBER	
	No.	\$ Value	No.	\$ Value	No.	\$ Value	No.	\$ Value
United States								
Under Graduate								
Accredited	173	100,610	101	78,660	56	56,700	30	15,510
Non-Accredited	44	10,075	14	3,050			14	3,050
Total	217	110,685	115	81,710	56	56,700	44	18,560
Graduate								
Accredited	95	121,878	26	36,950	9	10,650	14	22,200
Non-Accredited	1	1,010						
Total	96	122,888	26	36,950	9	10,650	14	22,200
Total U.S.	313	233,573	141	118,660	65	67,350	58	40,760
Canada								
Under Graduate	34	9,200	24	6,150	4	1,000	12	3,650
Graduate	18	21,250	5	3,050	3	1,500	2	1,550
Total Canada	52	30,450	29	9,200	7	2,500	14	5,200
GRAND TOTAL	365	\$264,023	170	\$127,860	72	\$69,850	72	\$45,960

Data from article "The Available Scholarships and Fellowships at Schools of Forestry in the United States and Canada for the Academic Year, 1956-1957." Journal of Forestry, September 1957 issue.

#### FORESTRY SCHOLARSHIPS AND FELLOWSHIPS—Number and Values by School Levels and Groups

The reporting by forestry schools would not be interpreted uniformly, particularly in respect to scholarships that are not specifically allocated to an institution. Also, there are funds available to foresters for graduate study in various related science fields, such as soils, plant physiology, genetics, and pulp and paper chemistry. The Institute of Paper Chemistry is an example.

However, the review referred to earlier presented some very interesting information. It includes data from 36 forestry schools, three of which are in Canada. The 33 schools in the U.S. include the 27 accredited, and six others of the non-accredited group. Some 365 scholarships with a value of \$264,033 are available, of which 170 are industry sponsored. The value of the latter group is \$118,660. The proportion in each case for industry is roughly the same when compared with the rest. In this analysis, the research and teaching assistantships were not included.

When we digest the data further in respect to levels of study, it is noted that from all sources, there are 251 undergraduate and 114 graduate awards, with values of \$119,885 and \$144,138 respectively. For the industry portion, the data show 139 undergraduate and 31 graduate awards with values of \$87,860 and \$40,000 respectively. As we would expect, the grants are of greater value for the graduate fellowships; however, industry supports about 27% of these grants with about 28% of the funds.

#### 72 Pulp and Paper Scholarships

The industry group comprises major classes of pulp and paper, lumber, chemical, plywood and equipment, with the majority in the first two. In setting apart pulp and paper, it is found that this group supplied 72 of the 170 industry grants with a value of \$69,850 or approximately one-half of the total of \$137,860. Lumber provided 72 grants with a value of \$45,960.

The values of the awards vary from \$100 to \$1,000 for the undergraduate scholarships, with an average of \$632 for industry; and from \$500 to a high of \$5,000 for the graduate fellowships with an average of \$1,300.

Some of the grants have added features, for example, the St. Regis scholarships of \$800 to juniors in forestry have also the promise of a summer job, if the student so wishes. We are

now in our sixth year of this program and have found it well worth while.

Many of the companies in industry are also making educational grants that are not ear-marked for forestry students, as you know; these are awards to outstanding high school students in many communities for use if they enter college in any field of study. There is no ready record of the number.

There is a related aspect to the student scholarship phase that should be mentioned. That is the various industry grants which are being made to institutions for special research projects, such as the forest genetics work at the several southern universities, paper chemistry studies, soils projects and the like. The amount is sizable and in many instances several forestry students are benefiting both technically and financially.

## Industry Must Provide Training Jobs To Get Best Foresters, Says Company Man

By J. J. ENNIS

Champion Paper & Fibre Co.

● Our company has taken an active part in student trainee programs for some time and we believe they offer an effective means to develop adequately trained industrial foresters. I

hope this panel discussion will generate an interest in these plans and convince you of their value to the industry, to the men who participate in them, and to the forestry schools.

We have had experience with two kinds of student trainee programs. One, a cooperative work-study plan covered by a formal agreement with

an accredited forestry school; and the other, an accepted company policy having to do with the summer employment of forestry students. I would like to discuss each of these briefly.

### Cooperative Work Program

About four years ago the School of Forestry at North Carolina State College solicited industry participation in a cooperative work program. Students who had completed the sophomore year at the college were eligible.

Companies taking part in the program agreed to employ a team of two students. While one man was at school, his teammate would be at work—at the end of a six months' period they would alternate work and study. It would take five years under the program to earn a degree. Companies participating in the plan were not bound to offer permanent employment to student-trainees when they were graduated.

Our company enthusiastically supported this program. It gave us an excellent opportunity to size-up prospective employees and to test a man's attitude and ability on the job. In addition to the training experience he gained, the student had a chance to observe our organizational set up and our methods of operation.

One young forester, brought to our attention through this program, proved to us that he could be an asset to any organization. He wants to work with us and we'd like to have him—we hope to offer him a permanent job when he completes his military service this year.

Had the program continued in effect there would have been other "discoveries"; but unfortunately this particular one was short lived. After a year of successful operation it had to be discontinued because of administrative difficulties that came about when the college was forced to adopt a semester system in place of the quarter system that was in effect when the program started.

Conflicts in teaching schedules and curricula resulted when attempts were made to fit the six month work plan into a nine month school year. Certainly there are solutions to these difficulties for similar plans are working well in other professions and other industries.

A recent survey shows that more than 600 companies in the United States are participating to-day in college work-study plans; and the number is increasing rapidly each year. If there is a better way to train men for a career in industrial forestry, I'd like to know it. The forest industries should recognize the value of these work-study plans and promote more

widespread use of them in our forestry schools.

Another type of trainee program with which we have had some experience concerns the summer employment of forestry students. Unlike the cooperative work plan mentioned previously, summer employment programs can function under either of the two conventional systems for dividing the school year—they are not restricted to schools operating under the quarter system. They simply require adoption of an employment policy that will permit the hiring of college students during the summer vacation—plus an honest attempt by the company to make a sufficient number of summer jobs available.

Programs should be so planned that, to the degree possible, trainees can be given a variety of job assignments. If the program is planned and organized properly, a company should be able to get its money's worth out of the student.

Like the work plan, summer employment gives a company the chance to look over prospective employees, and it gives the student an opportunity to tie in his academic training with practical experience.

### More Jobs in West

I was rather surprised the other day when the dean of one of our Southern forestry schools told me that most of his students had to go to the West Coast if they wanted summer employment because industry jobs were not available closer home.

Offhand I assumed that the main reason for this might be the student's desire to travel during the summer; but I'm not so sure now after reading what a faculty member from a forestry school west of the Mississippi had to say about it—and I quote: "Only occasionally is there a summer job with private industry available for a forestry student. The wood-using industries a few years ago tried to organize a summer employment plan; but from our experience here—it failed miserably because the cooperating companies did not follow up and offer a sufficient number of jobs. At least one industrial forester has stated to me that a summer is too short a time for his company to train and get anything out of a student. This may be true but I think his attitude is rather short-sighted." And he goes on to comment further on the value of summer employment programs.

The January issue of the "Journal of Forestry" carried a report by the Standing Committee on Forestry Career Counseling of the Society of American Foresters. I'd like to read a portion of one paragraph from this

report because it has a direct bearing on the topic we are discussing here.

"Students should be properly oriented and indoctrinated, particularly at the freshman and sophomore levels, so that they become thoroughly acquainted with forestry and know what to expect after graduation. Summer employment is a great aid in this respect, and public agencies, particularly the United States Forest Service, have provided abundant opportunities for summer employment. On the other hand, summer jobs with private concerns have not been so numerous. The committee recommends that the society suggest that industry consider the possibility of providing additional opportunities for summer employment."

These comments from three reputable sources indicate that our industry, as a whole, is not sold on the value of summer job training programs.

### Industry Critical of Schools

Industry has been critical of the forestry schools. Statements have been made to the effect that forestry students are not being trained in the fundamentals of business conduct, in the art of dealing with people, in realizing the importance of the profit motive in business—that the schools are developing specialists—that many graduates are not qualified by training to take their places in the industrial fields.

Lucian Whittle, the retiring president of American Pulpwood Association, has this to say on the subject: "Foresters of 1958—and more so with every passing year—must include in their ranks men who think less of the forest primeval than of stockholder dividends—less of communing with nature than of satisfying an industrial management group—more of revolutionary improvements than the text book practices they have learned in class rooms."

Now I agree that some of this criticism may be justified; but I disagree entirely in where we are placing the blame. How can we expect the colleges to turn out adequately trained industrial foresters unless industry provides the training jobs?

It is not my intention here to develop a case in defense of the forestry schools—there are two gentlemen on this panel who are better qualified to do that—if it is necessary; but I contend that industry has a definite responsibility in this matter, and that we are not fully accepting that responsibility until we do more than we have done to encourage work-study plans in the colleges, and to provide summer training jobs for the students in our forestry schools.



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# Analysis of Logging Injuries

shows no improvement in pulpwood since 1944. Despite hard hats, more skulls are hurt. Legs and feet injured most

By **GEORGE R. McCORMACK**  
Chief, Special Studies Branch,  
Industrial Hazards Div.,  
U.S. Dept. of Labor

• The Bureau of Labor Statistics has made two special surveys of work injuries in pulpwood logging operations. Since reference will be made to both surveys, a few words about the scope of each study are probably advisable.

The first survey was conducted in 1945, covering the calendar year 1944. Usable reports were received from 266 pulpwood logging operators employing nearly 10,000 workers. Because pulpwood logging operations in the West were substantially the same as other types of logging in that region, Western operations were excluded from the 1944 survey.

The second study, covering the year 1955, was part of a general survey of logging operations. This study included more than 1,400 logging operations and 25,000 employees. Included in the sample were 216 pulpwood logging operators employing 8,300 workmen.

Although the general logging survey, covering the continental United States, included pulpwood loggers from the West Coast, the number of loggers from that region specializing in pulpwood production is comparatively small. Therefore, the experience of pulpwood loggers in the second study is fairly comparable with that of the first study.

Since the 1955 survey is still in progress, this is a preliminary report of the findings of that survey. A more comprehensive report covering the entire logging industry will be issued later.

The injury frequency rate of the 8,300 pulpwood loggers included in the 1955 survey was 76.2. (The injury-frequency rate is defined as the number of disabling injuries per million hours worked. Since it takes about 500 workmen working full time for a year to work one million hours, the rate represents, roughly, the number of disabling injuries which 500 workmen would suffer during one year's employment. A disabling injury is one which results in death, in some degree of permanent

G. R. McCormack



impairment, or in an inability to work for at least one full day after the day of injury.)

## Injury Rate is High

By any standard the pulpwood logging rate, 76.2, is high. For example, the average for all manufacturing activities was only 12.1 and many of the so-called heavy industries had much better rates: iron and steel foundries, 26; boiler shop products, 23; and blast furnaces and steel mills, 5. Only stevedoring with a rate of 99 and a few of the mining industries had injury-frequency rates higher than that of pulpwood logging.

One of the first questions which arise in thinking of injuries in pulpwood logging is, "Does the injury ex-

perience of pulpwood logging differ significantly from that of general logging?" There is some indication that it does, although the injury-frequency rate for pulpwood logging is less than 10% better than the rate for sawlog production. (It should be noted that rates for all segments of the industry except those for pulpwood logging are preliminary and may be subject to adjustment later.)

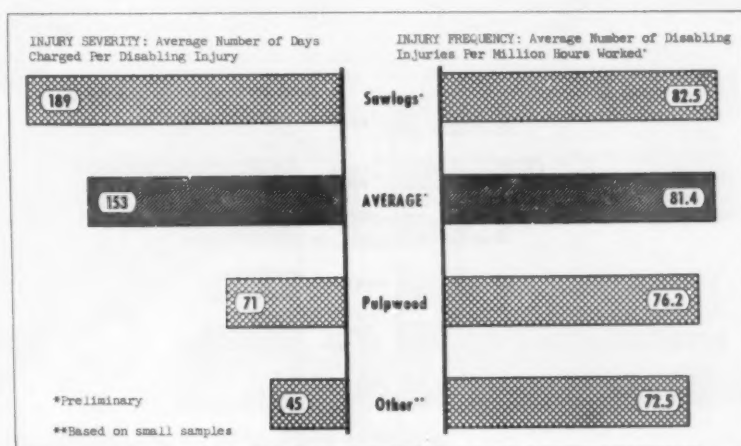
## But Severity is Not

Of special note, however, is the difference in the severity of injuries. For pulpwood logging, each disabling injury averaged 71 days of disability; for the production of sawlogs it was 189 days. In fact, the average disability for pulpwood logging was not a great deal higher than the average for all manufacturing, 63 days.

Severity rates which, more than any other injury-rate measure indicate insurance losses, were even more divergent; about 5,400 days of disability per million hours worked in pulpwood logging and 15,600 days in the production of sawlogs.

## No Drop in Rate

There is one disturbing factor, however, in our comparisons of pulpwood



U.S. Dept. of Labor, Bureau of Labor Statistics

1. DISABLING WORK INJURY RATES in Logging Operations. Classified by type of log produced, 1955.

logging and general logging. Since 1944, logging operators, excluding pulpwood loggers, have reduced their frequency rate 13 percent, from 94.6 to 82.3. On the other hand, pulpwood loggers have substantially the same rate now as in 1944—76.2 and 75.5. Incidentally, during that same period, the all-manufacturing rate dropped 34%, from 18.4 to 12.1.

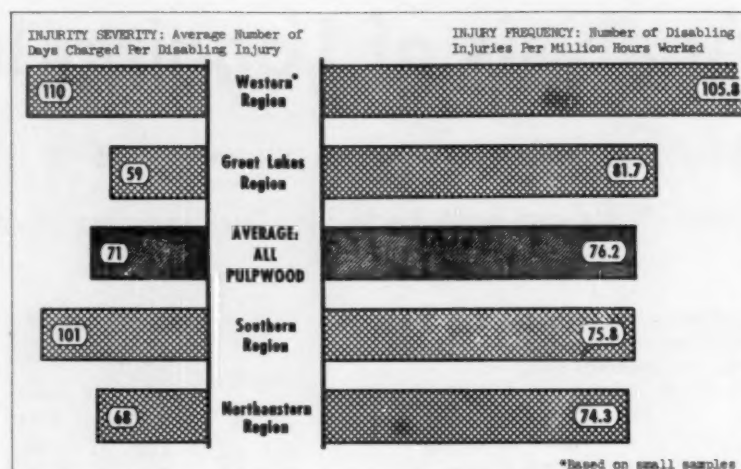
Unfortunately, injury data for pulpwood logging are not available for the interval 1945 to 1954. We cannot, therefore, define the trend of rates in pulpwood logging. It may be that the frequency rate trend was reversed during that period and that in 1955, the frequency rate reached, approximately, the 1944 level. Since the trend is not known, pulpwood loggers should be alert to the possibility that their injury-frequency rate may be swinging upward.

#### Injury Rate Variations

We next studied injury rate variations within the pulpwood logging operations. Based on a small sample, which may not be representative, pulpwood operations appear to be most hazardous in the Western region. Frequency rates for the other three regions did not differ widely. Actually, the frequency rate for the Great Lakes region (the worst of the three regional rates) was less than 10% higher than the Northeastern rate (the best of the three). Injuries were, on an average, most severe in the Western region but those occurring in the Southern region were only a little more favorable.

#### Regional Variations

Regional frequency rates in 1955 did not differ significantly from their 1944 levels. The Great Lakes and Southern regions showed reductions of approximately 2%, the Northeastern



U.S. Dept. of Labor, Bureau of Labor Statistics

2. DISABLING WORK INJURY RATES in Pulpwood Logging Operations. Classified by geographic region, 1955.

region an increase of less than 6%. With such small differences, these variations may have been due entirely to sample differences and not to actual changes in injury experience.

#### By Size of Operation

In previous studies of this type, we have found that, generally, small establishments have relatively low frequency rates and that injury frequency rates increase with increases in employment until a maximum rate is reached at about the 100 to 249 employee level. Further increases in employment are usually accompanied by lower frequency rates.

Frequency rates in pulpwood logging operations follow the general pattern with one exception—the rate for the 50 to 99 employee group is better than the next smaller size class.

Group averages, however, tend to conceal wide variations in injury-frequency rates among individual establishments. Actually, 53% of all pulpwood logging operators participating in the survey reported no disabling injuries during 1955. Most of these were small, of course, but three of them were in the 50 to 99 employee group.

On the other hand, more than 10% of the reporting establishments had rates in excess of 200. Again most of these were small but three of them were in the 50 to 99 employee group. At this adverse end of the scale, one-fourth of the reporting establishments employing less than 30% of all pulpwood loggers, accounted for 54% of all disabling injuries and 46% of the total disability.

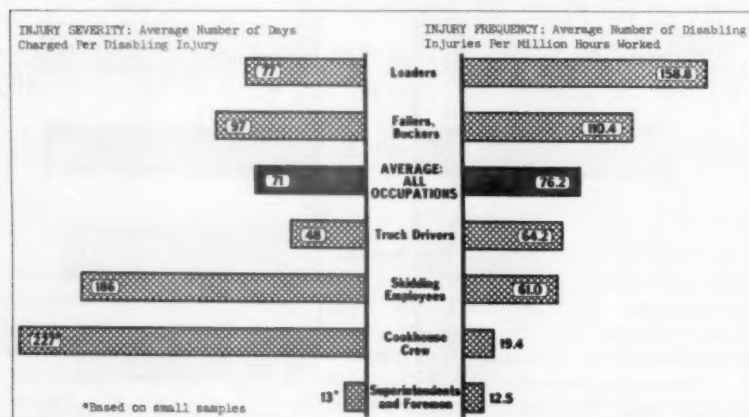
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#### Variation by Occupation

In this survey, we attempted to collect data by occupation in order to answer some of the many requests, which we get, for occupational injury rates. Unfortunately, it is not possible to show injury rates for all occupations in pulpwood logging operations because of (1) the combination of activities or occupations and (2) the limitation of the sample.

Although we reduced our minimum-sample requirements for calculation of injury rates, it was possible to show rates for only six occupational groups. Only one of these—fallers and buckers—had as much as one million hours of exposure to work hazards. However, all groups reported approximately 300,000 hours or more.

Loaders had the worst record—159 disabling injuries per million hours worked. Bruised legs and feet, lacerated hands, and strained backs were most common. Fallers and buckers had a frequency rate of 110. Nearly 60% of their injuries were cuts or



U.S. Dept. of Labor, Bureau of Labor Statistics

3. DISABLING WORK INJURY RATES in Selected Occupations in Pulpwood Logging Operations, 1955.

lacerations.

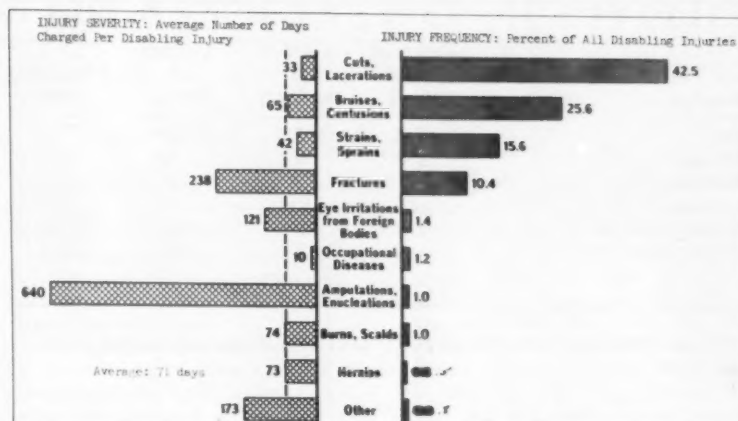
The other four groups had less-than-average rates but even the best shown—that for superintendents and foremen—could hardly be considered good for the type of work performed. In general, occupations with high-frequency rates had the lowest severity averages.

#### Kinds of Injuries

Let us now move to some of the more specific details of the injuries which pulpwood loggers experienced. The chart shows the kinds of injuries which they reported. Ninety four per cent of all disabling injuries fell into four categories: cuts and lacerations, bruises and contusions, strains and sprains, and fractures. Of the four groups, fractures tended to be the most severe.

The remaining injuries were classified into six groups. None of these were important numerically but, based on the small numbers of injuries reported, they tended to be severe. Five of the six groups had greater-than-average severities.

In view of the fact that chain saws are used so extensively in pulpwood logging operations today, it was a little surprising to note the similarity of the pattern of injuries in the 1944 and 1955 surveys. In 1955, the four



4. NATURE OF WORK INJURIES in Pulpwood Logging Operations, 1955.

largest groups of injuries accounted for 94% of all disabling injuries; in 1944, the same four groups accounted for 95%. There were, however, some differences in their relative importance.

Surprisingly, despite the apparent decrease in the use of axes, cuts and lacerations increased from 33% of all disabling injuries in 1944 to 42% in 1955. Bruises and contusions, strains and sprains, and fractures all showed decreases to account for the differ-

ence. Since frequency rates in the two years were nearly identical, increases and decreases in percentages reflected actual increases and decreases in the frequency of the noted injuries.

Among the less common injuries, occupational diseases increased in 1955, but this may be due to more complete reporting of occupational disease data in the latter year. The proportion of hernias decreased in 1955 but this may be a reflection of the changes in reportability under the

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Size of plant	Number of establishments	Number of employes	Number of injuries	Frequency rate
Total	216	8,296	1,250	76.2
1-19 employes	150	861	82	52.1
20-49 employes	31	749	135	92.9
50-99 employes	21	1,214	179	72.2
100-249 employes	8	1,268	232	101.6
250 and over	6	4,204	622	72.1

**SPECIAL TABULATION OF INJURY DATA in Pulpwood Logging Operations, 1955.**

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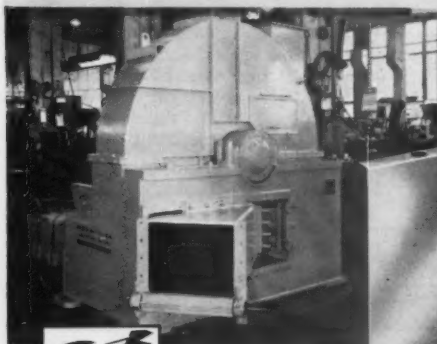


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revised American Standard for the compilation of injury rates. Amputations and enucleations, the most severe of all injuries, accounted for 1% of all disabling injuries in both years.

Leg, foot, and toe injuries were most common, accounting for 45% of all disabling injuries; more than three-fifths of them were cuts or lacerations and another one-fifth were bruises or contusions.

About 24% of all disabling injuries were trunk injuries, mostly back and chest injuries. Trunk injuries were most frequently strains and sprains but there were a considerable number of bruised chests and backs and a large number of fractured ribs. In general, the leg, foot, and toe injuries and the trunk injuries together with the arm, hand, and finger injuries were not severe.

In contrast, skull injuries accounted for less than 3% of all disabling injuries but because they included three fractured skulls which resulted in death they were responsible for 21% of the total reported disability, averaging 572 days of disability per case.

Eye injuries were only slightly more frequent than skull injuries. However, permanent injuries were relatively frequent in that group. As a result, the average eye disability was 126 days.

Between 1944 and 1955, leg, foot, and toe injuries, as a group, and head injuries increased and trunk and arm, hand, and finger injuries decreased. Leg injuries accounted for most of the increase in leg, foot, and toe injuries (from 20.6% in 1944 to 25.5 in 1955).

In 1944, hard hats were seldom used in pulpwood logging operations; today they are used extensively. It was surprising to note, therefore, that skull injuries actually increased during the period. In 1944, only 1% of all disabling injuries were skull injuries; in 1955, they accounted for 2.7%. Using frequency rates for comparison, skull injuries occurred at the rate of 0.76 disabling injuries per million hours worked in 1944 and 2.06 in 1955.

Summarizing, I would say that the injury picture in pulpwood logging activities does not look good. Further, it appears to have changed very little from 1944 even though the safety movement has, generally, made considerable progress during that time.

Pulpwood loggers are, therefore, faced with the challenge to outdistance safety activities in other industries in order to attain, at least, the degree of success which other industries have had. Remember, between 1944 and 1955, manufacturing industries, which by definition includes the logging industry, have improved their frequency rate by 34%.

## REVIEW OF ASSOCIATION ACTIVITIES

● The 24th year in the life of the American Pulpwood Association was marked by a slight leveling off of pulpwood consumption, a drop of 1% from 1956 to 1957. The same period saw a drop in finished products sales between 6 and 8%, and net profits off 20 to 50% or more.

The economic state of the industry has given time for sober reflection on where we now stand in future predictions of pulpwood consumption. A projection of pulpwood consumption from the Stanford Research Institute report, "America's Demand for Wood," shows that in 1967 we should be consuming about 40.0 million cords.

The final report of the Timber Resource Review of the U.S. Forest Service projects pulpwood consumption on a medium level in 1975 to 72.0 million cords.

A third estimate prepared by the Department of Commerce with the assistance of the industry indicates that ten years from now the use of pulpwood should be close to 56.0 million cords.

Our reaching these goals will depend largely on our ability to provide timber for economical mill delivery. The leveling off period of pulpwood consumption has afforded opportunity for the Association to re-evaluate its programs for improving practices in both wood procurement and forest management in order to keep the industry in a sound position.

As the only national organization representing both producers and consumers of pulpwood, its program is aimed at keeping the industry informed on production and procurement methods, including equipment and labor training aids; on programs looking toward improved utilization methods, conservation, and good forest management practices, and on national legislation affecting its operation. In addition, a new service was added last year—the responsibility for collecting, compiling and distributing pulpwood statistics.

The most significant aspects of the growth and expansion of responsibilities of the Association in 1957 were:

1. APA has represented the pulpwood, pulp, paper and paperboard industries on all pulpwood and forestry matters on the national level.
2. The Association has issued vital pulpwood statistics on a weekly, monthly, quarterly and annual basis.
3. A manpower and equipment sur-

vey was undertaken and completed to supply needed information for the industry in these fields.

4. Liaison and communications with other organizations, and with Government agencies was continually enlarged and improved.

Cooperative relationships with the Forest Service continued on an encouraging basis, and friendly meetings with representatives of national wildlife and conservation organizations were initiated. Through the Forest Industries Council the Association participated in a meeting of all national and regional forestry organizations in the discussion of matters of mutual interest to the forest industries.

Added responsibilities and projects of the Association necessitated a move into larger quarters of the News Building. The condition of the industry, however, was reflected in its membership which suffered a 7% loss in all types of members. Some of the loss can be accounted for by company mergers, but other losses reflect general economic conditions.

The Finance Committee was active in 1957 in analyzing APA financial structure and policies and made a number of constructive recommendations. Some of these have already been put into effect: Budgeting and fiscal operations have been changed from a calendar year to a fiscal year running from May 1st of 1958 through April 31st of the next year. The financial situation of the Association continued sound in 1957 with a modest amount added to Capital Reserves at the end of the year.

Changes in staff were necessitated during the year. A Forest Engineer engaged for the Northeastern Region died suddenly, and caused delay in moving the present Engineer in that region to the Lake States as replacement for our Forest Engineer who resigned to accept a position in industry. In all regions the work of the Technical Committees continued as one of the strongest and most constructive programs sponsored by the Association for the benefit of its members.

In re-examining the programs of the Association with the help of Association members, it is apparent that this is a time in the growth of our industry when we can take advantage of a breather in our expansion programs to develop more aggressive practices in forest management and

wood procurement. Meeting the estimates of pulpwood consumption will depend largely on our ability to provide wood for economical mill delivery. With the help of industry members, working through committees and furnishing the staff their guidance and counsel, the Association is better organized than ever before to keep the industry progressing in a way that will enable us to discharge our responsibilities to permit the continued growth and expansion necessitated by population forecasts.

### Mechanization Program

The five regional Technical Committees, for which the Forest Engineers serve as Secretaries, are the real backbone of the Association's service to its members. These Committees, made up of the men who are responsible for pulpwood production and procurement for their individual companies, meet at least twice a year to discuss topics of interest to that region.

Most meetings include a field trip to view pulpwood operations of a nearby company or to view equipment demonstrations. The subjects listed below were covered at Technical Committee meetings in 1957 and demonstrate the scope and coverage of subjects of current interest:

#### Lake States

April—Operations of the Crossett Company, Crossett, Arkansas  
September—Debarkers—Log, Pulpwood and Slab

#### Appalachian

May—Pulpwood Rack Card for the Appalachians  
October—Management Records for Top Management

#### Southeast

April—1. Economics of Brush and Weed Tree Control; 2. Closer Wood Utilization  
November—Keeping Pulpwood Competitive

#### Southwest

April—Growing and Producing More Wood with Less Men  
November—Conveying and Generating Pulpwood Production Ideas

#### Northeast

June—Small Pulpwood Producer Equipment and Production  
October—1. Spruce-Fir Silviculture; 2. Forest Fire Protection

The Association has had a significant part in providing rapid exchange of ideas through its technical releases

and technical program generally in developing more efficient ways of producing wood. If it were not for improved methods and equipment developed to handle wood more efficiently, our pulpwood costs would be about twice what they are today. Topics covered by Technical Releases in 1957 are listed here.

### **Manpower and Equipment Survey**

The Association completed a survey which gives complete information

by regions on estimated pulpwood, manpower and equipment requirements of the pulpwood industry. The survey reveals that transportation of pulpwood is a business involving more than 50 million cords a year, and that by 1960 the total will be close to 60 million cords.

A few highlights: 57,471 trucks were used in transporting pulpwood, 45.91% by regular producers, 49.67% by part-time producers, and 4.4% by companies; 72,226 power saws were in use, 50.15% by part-time producers,

42.31% by regular producers, and 7.54% by companies; 18,788 tractors, 55.64% by part-time producers, 40.02% by regular, and 4.34% by companies; a total of 221,144 men were involved in pulpwood production, 49.90% by regular producers, 43.83% by part-time producers, and 6.27% by companies.

The data furnished by the survey will give vital background information needed to improve such industry conditions as: (1) proving the need for more railroad rack cars and railroad chip cars in several regions; (2) amending the Highway Revenue Act of 1956 and providing for rebates of taxes on pulpwood and logging trucks, fuel and tires used off public highways; (3) furnishing up-to-date information on manpower and equipment needs of the industry for "Pulpwood Industry Facts" issued by American Forest Products Industries, Inc.

### **Safety and Training Program**

The Association's safety and training program was started during the last war when a safety and training officer supervised the training of prisoners to cut pulpwood. Although safety training programs are the responsibility of the individual companies, the Association has continued to stress the importance of improving the safety record of our industry and to publish training guides which will help to accomplish this. Some progress in the safety record of pulpwood logging as a whole can be seen in the records of the U.S. Bureau of Labor Statistics which show an accident frequency of 82.3 accidents per million work hours for all logging in 1955 as compared with 76.2 for pulpwood logging in the same period.

During 1957 the Association's activities in this field have been confined to continuing contacts and stimulating interest on the part of member companies in the work of the National Safety Council, in issuing an up-to-date list of safety films available through APA, and in conducting three safety and training meetings at specific requests of members or public agencies. In addition, the Northeast Technical Committee has prepared two color films on woods safety and has financed a separate library of safety films.

The following Training Guides and Workers' Notebooks are available on request:

1. Training Manual
2. Training Guide No. 1—covering foreman training, including the Foreman's Notebook
3. Training Guide No. 2 on Use and Care of Axes

### **EQUIPMENT HANDBOOK RELEASES ISSUED DURING 1957**

No.	Subject
285	Nel-Spot Paint Hammer and Log Marking Paint
286	Eaton Log Debarker
287	Swingfog-Fogging and Spraying Machine
288	Progress Report—Chemical Treatment of Trees with Hormone-type Chemicals
289	Waste Sulphite Liquors Find Use as Road Binder
290	Progress Report—The Burnt River Mechanical Debarker
291	Highway Reflector Flares
292	Texas Forest Service Bulletin No. 49 "The Utilization of Wood Residues for Pulp Chips"
293	Hauling Pulpwood by Trailers in Tandem (International Paper Co.—Clayton Lake, Maine Operation)
294	Hauling Pulpwood Sled Trains with Caterpillar DW-6 (Great Northern Paper Co.—Pittston, Maine Operation)
295	Wooden Pallets for Loading Pulpwood
296	Powered Pulpwood Trailer
297	Scaling & Unloading Dock—St. Croix, New Brunswick, Canada (Eastern Pulp Wood Co., Calais, Maine)
298	"More Wood with Less Men Through Closer Utilization"*
299	Mullis Log Skinner (Progress Report No. 1)
300	Progress Report JACKSON BEAVER LOG DEBARKER
301	Progress Report #1 FULGHUM LOG DEBARKER
302	Northeastern Chip Concentration Yard
303	Cornell Delimbing and Bucking Machine (Progress Report)
305	Peterson Pulpwood Dray
306	Tygart Self-Propelled Seedling Harvester
307	Carco C-3 Winch for Light Tractors
308	Hough Payloader 4-ft. Pulpwood Attachment for Loading Boxcars
309	Power Saw with Measuring Guide
310	Electronic Weight Scale for Lift Truck
311	Sling Swivel for Lift Trucks
312	Hauling Pulpwood by Trailers in Tandem (Progress Report #1) I.P., Clayton Lake, Maine
313	A Pulpwood Producer—Alabama
314	Chip Yields of Log Sizes
315	Chemical Applicator for Deadening Trees
316	"Bark-Lasse"—Portable Barking Machine
317	Portable Saw Chain Filing Machine
318	Fritts Slab Debarker (Progress Report #1)
319	Typical Truck & Horse Operation in the Southern Portion of Appalachians
320	Mechanized Rail Wood Yards in Appalachians
321	Mobile Radio Communications—Complete Mobile Radio Communications—Digest
322	Crown-Zellerbach's Deep River Chipping Plant
323	Typical Pulpwood Operation—Central Wisconsin
324	Hiabob C-10 Pulpwood Loader
325	St. Regis Paper Company—Fire Tool Trailer
326	Bishop Fire Pump Attachment
327	A New Wrinkle in Chemical Debarking



4. Training Guide No. 3 on Use and Care of Pulpwood Hand Saws and the Pulpwood Cutters' Notebook

5. Training Guide No. 4 on Use and Care of Power Saws with the Power Saw Operators' Notebook (both English and French versions)

6. Training Guide No. 5 on Chemical Debarking of Trees with the Chemical Debarkers' Notebook

7. Training Guide No. 6 on Animal Skidding with Workers' Notebook

### Industrial Forestry

The Industrial Forestry Program began with the Association in 1934 and has been one of its most important activities over the years. Two important measures of the progress made by individual companies, which were released in 1952 by the Association and in 1957 by American Forest Products Industries, show remarkable progress in such factors as the number of technical foresters employed and the degree of forest protection and management on company lands. The final report of the Timber Resource Review shows that pulp and paper companies lands have the highest degree of productivity of any type of ownership, including public.

The specific programs most stressed by the Association in this field in 1957 were: (1) encouragement of maximum utilization of mill and woods wastes; (2) exchange of ideas on techniques and management of company forest lands by forestry personnel; (3) providing leadership and coordination in the formation of policies and action on national issues and legislation concerned with forestry matters.

FOREST NOTES published on a regular basis featured forestry items of interest to the industry. Technical Releases have also featured forestry developments of regional and national interest.

Specific projects undertaken in 1957 as part of the industrial forestry program of the Association include: (1) releases and discussion of use of wood waste for pulp chips at Technical Committee sessions; (2) publishing of "Cutting Practices for Second Growth Northern Hardwoods Forests" in Wisconsin; (3) cooperation with the U. S. Forest Service in formation of legislative and national forestry policy; (4) cooperation with AFPI in a management and recreational survey of company lands; (5) following developments of Soil Bank Conservation Reserve Program; (6) following development of quarantine regulations on the imported fire ant; (7) influencing re-issuance of annual reports of the Forest Service and inclusion of pulpwood statistics.

### Statistical Program

The American Pulpwood Association has had industry responsibility for collecting, compiling and distributing pulpwood statistics since January, 1957. Prior to that, the American Paper and Pulp Association had most of this responsibility from as far back as 1921. The National Paperboard Association had been handling, from 1948, weekly pulpwood reports for most Southern mills concerned with paperboard.

Prior to these dates, only the U.S. Bureau of the Census collected and reported pulpwood statistics and, of course, still does, covering nearly 100% of all pulpwood-consuming mills. Their monthly reports appear six to eight weeks after the end of the month, and they do not cover the details that our industry demands after a shorter reporting period.

We are pleased to report on some of the progress made under the new APA Statistics Program during the year 1957. The pulpwood-consuming mills reporting pulpwood statistics monthly and quarterly to APA increased from 157 mills and 79% of total consumption to 187 mills representing 94% of the total pulpwood consumption of the U.S. The quarterly report is a summary of pulpwood receipts only and is developing valuable information by species groups and classes of pulpwood that had not been available prior to last year.

Both the monthly and quarterly pulpwood reports are available to Members and Subscribers of the American Pulpwood Association as well as participating companies. The Southern mills reporting pulpwood statistics weekly increased from 42 mills to 48 mills by the end of 1957. The weekly pulpwood summaries are available only to the participating companies.

A "Pulpwood Statistical Review" will be issued in May 1958 by APA. This Review will be available to the public at a nominal fee to cover cost of printing. It will consist of APA Preliminary Pulpwood Figures for 1957, by regions, species groups and classes of pulpwood. Other detailed information on pulpwood prior to 1957 will be included in the Review.

One significant trend during 1957, which is shown clearly in our quarterly reports on receipts, is the increasing importance and use of softwood chips by our industry. The total softwood chips received in 1957 represented 10% of the total pulpwood received.

On the other hand, receipts of total hardwood shaped up as follows for the year 1957: Northeast increased 96,000 cords, South Atlantic increased

204,000 cords, West increased 152,000 cords, while the South Central Region decreased 284,000 cords, and the North Central decreased 182,000 cords.

For the total United States total Hardwood Received was off only 13,000 cords. All figures are in terms of rough cords of 128 cubic feet. These figures are APA Preliminary figures for the year.

### Legislative Highlights—1957

The major legislative concern to the industry continued to be that of protecting the 12-man and seasonal exemptions in the Fair Labor Standards Act. The Association testified on this matter in Washington and participated in hearings in New Orleans, helping to coordinate the testimony given by independent producers. Related to this issue, Assistant Secretary of Labor, Newell Brown, met with the Board of Directors on a friendly and informal basis for discussion of this and other problems.

Representing the pulpwood, pulp and paper and paperboard industries, the Association conducted an active educational and legislative program on such subjects as federal price reporting for forest products, establishment of a National Wilderness Preservation System, and a National Outdoor Recreation Review Commission, rulings by the Internal Revenue Service on timber, and amendments to the Coordination Act.

The Association also supported American Paper and Pulp Association on legislation of primary concern to the entire industry such as pre-merger notification legislation, immigration, depressed areas, and retention of the "Good-Faith Defense" clause of the Robinson-Patman Act.

### Membership and Subscriptions

Any individual or organization interested in receiving American Pulpwood Association publications can do so either through membership or subscriptions. Membership is confined to bona fide producers, dealers, and consumers of pulpwood in the United States.

Subscriptions to American Pulpwood Association material are available to those who do not qualify for membership; e.g., producers, dealers, or consumers of pulpwood outside the United States, those engaged in other forest products industries, equipment manufacturers or dealers, public foresters, forestry students, etc.

Details as to cost of membership and subscriptions are available from the Association's Office at 220 East 42nd Street, New York 17, New York.

# How to load 240\* cords daily ..and save \$1\* per cord.. with TD-9 Skid-Grapple!

**Exclusive load control** is the big answer. Positive, all-weather, all-terrain load control all the way, which only an International Drott Skid-Grapple gives you!

You simply slide the Skid-Grapple's lower prongs under the woodpile. Apply exclusive triple-power, pry-action breakout and ground-level roll-back. The exclusive International Drott-designed, frame mounted skid-shoes on the ground provide the fixed fulcrum point.

Then you clamp onto the load securely with the exclusive top grab-arm. The third valve, standard equipment in International Drott design, provides the power source for complete top grab-arm control.

## A cord at a time!

Even if the pulpwood is frozen down  
\*or more

or mudded in, you get a big payload every time. The International Drott TD-9 pulpwood Skid-Grapple can pick up one cord of 8-foot pulpwood at a time—can load 240 cords, or more, daily, with only a one-man crew!

Separate top grab-arm control of every stick of wood lets you spot-place each grapple-full with ease, safety, and accuracy!

**See how you save \$1.00 per cord**, or more, by streamlining pulpwood handling with an International Drott Skid-Grapple. Compare the stay-put advantages of this rig that has logger-designed strength—and is mounted on the basic, super-strong Skid-Shovel frame. Measure the performance-protection of exclusive, shock-swallowing Hydro-Spring! See your International Drott distributor for a Skid-Grapple demonstration!

**Note that Skid-Grapple dumping** resembles the way you ease down an armload of firewood... There's an International Drott Skid-Grapple to give you world-beating pulpwood handling efficiency—whatever length it's cut!



**INTERNATIONAL®**  
**DROTT®**

International Harvester Company, Chicago 1, Illinois  
Drott Manufacturing Corp., Milwaukee 15, Wisconsin



The TD-9 Skid-Grapple can put it "up there," fast—as high as 10' 2"—for efficient loading or repiling. The Skid-Grapple interchanges with 4-In-1 or standard Skid-Shovel bucket to give you a capable road-building and material-handling unit!



# ORGANIZATION AND PROGRAM FOR 1958-59

● The American Pulpwood Association will continue to strive for improvement to pulpwood preparation, loading, and production in general during the coming year. Its long-term objectives are:

(1) To conduct the Association in such a manner that it will guide and help the pulpwood industry to obtain pulpwood at the lowest cost, the highest quality and in adequate amounts now, and for future generations.

(2) To serve the entire pulpwood industry in our national programs of legislation, mechanization, training and safety and the intensive management of company forest lands.

(3) To encourage all members to prepare now for the predicted increase in consumption of pulpwood likely to occur during the next 10 to 20 years.

## Board of Directors

The work of the Association is carried out by the Staff along the lines and policies laid down by the Directors of the Association. These men were elected by the Industry Members of the Association at their Annual Meeting on February 18, 1958, in New York City.

## Appalachian Region

- R. C. BARIENBROCK  
The Mead Corp.  
Chillicothe, Ohio
- D. E. HESS  
Glatfelter Pulp Wood Co.  
Gettysburg, Pa.
- R. R. EDGAR  
Bowaters Southern Paper Corp.  
Calhoun, Tenn.

## Lake States Region

- E. B. HURST  
Consolidated Water Power & Paper Co.  
Wisc. Rapids, Wisc.
- W. M. MACCONNACHIE  
Northwest Paper Co.  
Cloquet, Minn.
- H. R. PALMQUIST  
Marathon Corp.  
Neenah, Wisc.

## Northeastern Region

- D. B. DEMERITT  
Eastern Corp.  
Bangor, Maine
- C. S. HERR  
Brown Co.  
Berlin, N. H.
- F. E. PEARSON, JR.  
Eastern Pulp Wood Co.  
Calais, Maine

## Southeastern Region

- W. J. BRIDGES, JR.  
Union Bag-Camp Paper Corp.  
Savannah, Ga.
- W. D. SMITH  
Buckeye Cellulose Corp.  
Foley, Florida
- L. A. WHITTLE  
Brunswick Pulp & Paper Co.  
Brunswick, Ga.

## Southwestern Region

- A. G. CURTIS  
Gaylord Container Corp.  
Bogalusa, La.
- J. B. LATTAY  
Riegel Paper Corp.  
Bolton, N.C.
- R. W. LAW  
Olin Mathieson Chemical Corp.  
W. Monroe, La.

## Western Region

- E. P. DAVIS  
Rayonier Inc.  
Fernandina Beach, Fla.
- H. V. HART  
St. Regis Paper Co.  
Deferiet, N.Y.

- B. L. ORELL  
Weyerhaeuser Timber Co.  
St. Paul, Minn.

## At Large

- T. W. EARLE  
Continental Can Corp.  
Savannah, Ga.
- W. J. DAMTOFT  
Champion Paper & Fibre Co.  
Canton, N. C.
- L. J. KUGELMAN  
International Paper Co.  
New York, N. Y.
- K. A. SWENNING  
Scott Paper Co.  
Chester, Pa.
- G. W. ABEL  
Owens-Illinois Glass Co., Mill Div.  
Toledo, Ohio
- S. K. HUDSON  
Container Corp. of America  
Brewton, Ala.
- J. T. MAINES  
Great Northern Paper Co.  
Bangor, Maine
- D. Y. LENHART  
West Virginia Pulp & Paper Co.  
New York, N. Y.

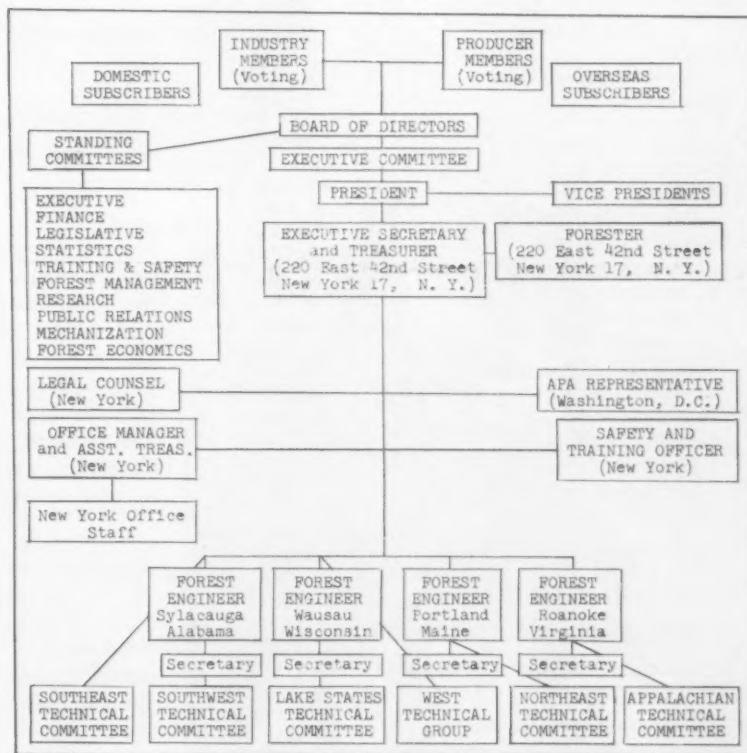


DIAGRAM OF ORGANIZATION—American Pulpwood Association



W. C. MACADAM  
Champion-International Co.  
Lawrence, Mass.

E. C. MELCHER  
S. D. Warren Co.  
Cumberland Mills, Me.

C. B. BONFIELD  
American Box Board Co.  
Grand Rapids, Mich.

JOHN WHITE  
Keyes Fibre Co.  
Waterville, Maine

C. A. OLSSON  
Chesapeake Corp. of Va.  
West Point, Va.

B. E. CLARIDGE  
Hammermill Paper Co.  
Erie, Pa.

A. L. BENNETT  
New York & Pennsylvania Co.  
Johnsonburg, Pa.

H. L. BEACH  
Oxford Paper Co.  
Rumford, Maine

R. W. MERRILL  
Penobscot Chemical Fibre Co.  
Great Works, Me.

G. B. AMIDON, *ex officio*  
Minnesota & Ontario Paper Co.  
Int'l. Falls, Minn.

#### Officers—1958

##### *President*

G. B. AMIDON  
Minnesota & Ontario Paper Co.  
International Falls, Minn.

##### *Vice Presidents*

A. G. CURTIS  
Gaylord Container Corp.  
Bogalusa, La.

L. J. KUGELMAN  
International Paper Co.  
New York, N. Y.

D. E. HESS  
Clatfelter Pulp Wood Co.  
Gettysburg, Pa.

##### *Executive Secretary and Treasurer*

W. S. BROMLEY  
220 East 42nd St.  
New York 17, N. Y.

##### *Assistant Treasurer*

HELEN L. KOHLER  
220 East 42nd St.  
New York 17, N. Y.

#### *Staff—1958*

##### *Forester*

H. S. MOSEBROOK  
220 East 42nd St.  
New York 17, N. Y.

##### *Safety and Training Officer*

H. H. JEFFERSON  
220 East 42nd St.  
New York 17, N. Y.

##### *Southern Forest Engineer*

J. A. HOLEKAMP  
105 Calhoun St.  
Sylacauga, Ala.

##### *Northern Forest Engineer*

D. A. SWAN  
533 Forest Ave.  
Portland, Maine

##### *Lake States Forest Engineer*

J. S. HENSEL  
109 Grand Ave.  
Wausau, Wisc.

##### *Appalachian Forest Engineer*

J. A. ALTMAN  
2524 Hanover Avenue, N.W.  
Roanoke, Va.

#### *Advisors—1958*

##### *Counsel*

DUNNINGTON, BARTHOLOW & MILLER  
161 East 42nd St.  
New York 17, N. Y.

##### *Washington Representative*

T. H. MULLEN  
711 14th Street, N.W.  
Washington, D. C.

#### Standing Committees

Standing Committees are set up to function as advisory groups who study the problems, and recommend solutions and courses of action to the Board of Directors, Officers, or Staff, in the respective fields of interest outlined for the responsibility of each Committee, in regard to matters affecting the Association in particular and the Industry in general.

##### *Executive Committee*

G. B. AMIDON, *Chairman, ex officio*  
Minnesota & Ontario Paper Co.  
International Falls, Minn.

A. G. CURTIS, *Vice Chairman*  
Gaylord Container Corp.  
Bogalusa, La.

D. E. HESS  
Clatfelter Pulp Wood Co.  
Gettysburg, Pa.

W. M. MACCONNACHIE  
Northwest Paper Co.  
Cloquet, Minn.

D. B. DEMERITT  
Eastern Corp.  
Bangor, Maine

W. J. BRIDGES, JR.  
Union Bag-Camp Paper Corp.  
Savannah, Ga.

B. L. ORELL  
Weyerhaeuser Timber Co.  
St. Paul, Minn.

W. J. DAMTOFT  
Champion Paper & Fibre Co.  
Canton, N. C.

L. J. KUGELMAN  
International Paper Co.  
New York, N. Y.

K. A. SWENNING  
Scott Paper Co.  
Chester, Pa.

Between meetings of the Board of Directors, the Executive Committee,

consisting of nine members of and appointed by the Board, has and may exercise all of the powers of the Board of Directors subject only to the general approval and supervision of the Board.

##### *Finance Committee*

L. J. KUGELMAN, *Chairman*  
International Paper Co.  
New York, N. Y.

D. Y. LENHART, *Vice Chairman*  
West Virginia Pulp & Paper Co.  
New York, N. Y.

W. C. MACADAM  
Champion-International Co.  
Lawrence, Mass.

P. F. HURSEY  
Southland Paper Mills  
Lufkin, Texas

T. W. EARLE  
Continental Can Co. (Gair Woodlands)  
Savannah, Ga.

G. B. BONFIELD  
American Box Board Co.  
Grand Rapids, Mich.

H. R. PALMQUIST  
Marathon Corp.  
Neenah, Wisc.

E. P. DAVIS  
Rayonier Inc.  
Fernandina Beach, Fla.

H. V. HART  
St. Regis Paper Co.  
Deferiet, N. Y.

R. C. BARIENBROCK  
The Mead Corp.  
Chillicothe, Ohio

Passes on its recommendations on all questions of policy and major decisions in reference to finance matters of the Association. This includes consideration of the annual budget of the Association, any questions in regard to assessments, and other financial matters.

##### *Legislative Committee*

K. A. SWENNING, *Chairman*  
Scott Paper Co.  
Chester, Pa.

B. L. ORELL, *Vice Chairman*  
Weyerhaeuser Timber Co.  
St. Paul, Minn.

F. E. PEARSON, JR.  
Eastern Pulp Wood Co.  
Calais, Maine

J. T. MAINES  
Great Northern Paper Co.  
Bangor, Maine

R. M. BUCKLEY  
East Texas Pulp and Paper Co.  
Silsbee, Tex.

A. G. CURTIS  
Gaylord Container Corp.  
Bogalusa, La.

EARL PORTER  
International Paper Co.  
Mobile, Ala.

**WHERE...and HOW...  
do you handle pulpwood?**

**A LORAIN goes anywhere  
handles pulpwood in any form!**

*Where do you handle pulpwood? In the woods—in the yard—in the mill? Wherever pulpwood has to be moved, there is a Lorain for the job! If you want a crawler mounting for the most rugged terrain or short-haul travel—if you need a rubber-tire crane for fast moves on haul roads or around collection yard or mill, choose a Lorain.*



*How do you handle your pulpwood? Do you grapple feed your mill from blockpiles or jack-strawed pulpwood? Choose a Lorain with pulpwood grapple or sling. Or do you unload your cars directly into the flume? Then, a Lorain is the answer. No matter what your production schedule, there is a Lorain with the right capacity—sizes from 7 to 75 tons—and the right type—for the job! And special pulpwood handling tools like the Lorain Rake on crawlers, rubber tires or gantry can be engineered for your specific work.*

*Add to these money-making reasons more exclusive Lorain features like these: 2-lever, "Joy-Stick" air controls; "Shear-Ball" turntable mounting; and square-tubular-chord crane boom. Here are but a few of the many reasons why it pays to own Lorain! See your Thew-Lorain Distributor for the full story.*

**THE THEW SHOVEL CO., LORAIN, OHIO**



**THEW  
LORAIN®  
RELIABILITY IN ACTION**

M. H. COLLET  
Olin Mathieson Chemical Corp.  
West Monroe, La.

P. F. HURSEY  
Southland Paper Mills  
Lufkin, Tex.

L. A. WHITTLE  
Brunswick Pulp & Paper Co.  
Brunswick, Ga.

W. J. BRIDGES, JR.  
Union Bag-Camp Paper Corp.  
Savannah, Ga.

R. W. WOLCOTT  
Inland Container Corp.  
Rome, Georgia

E. B. HURST  
Cons. Water Power & Paper Co.  
Wisconsin Rapids, Wisc.

S. N. MOE  
Kimberly-Clark Corp.  
Neenah, Wisc.

W. M. MACCONNACHIE  
Northwest Paper Co.  
Cloquet, Minn.

M. G. RAWLS  
St. Regis Paper Co.  
Jacksonville, Fla.

W. J. DAMTOFT  
Champion Paper & Fibre Co.  
Canton, N. C.

R. C. BARIENBROCK  
The Mead Corp.  
Chillicothe, Ohio

Makes recommendations in regard to such actions and proceedings as may be authorized by the Members of the Association, or its Board, with reference to any and all existing or proposed legislation and regulations and interpreting the same which may affect or be applicable to the Pulpwood Industry or any part thereof.

#### *Statistics Committee*

H. L. BEACH, *Chairman*  
Oxford Paper Co.  
Rumford, Maine

W. C. MACADAM, *Vice Chairman*  
Champion-International Co.  
Lawrence, Mass.

W. R. WILLIAMS  
Coosa River Newsprint Co.  
Coosa Pines, Ala.

A. G. NATWICK  
East Texas Pulp & Paper Co.  
Silsbee, Texas

WM. SMIDT  
International Paper Co.  
New York, N. Y.

C. G. SNYDER  
International Paper Co.  
Camden, Ark.

C. W. MEDFORD  
Southland Paper Mills  
Lufkin, Texas

G. H. WESLEY  
Owens-Illinois Glass Co., Mill Div.  
Jacksonville, Fla.

A. I. JEFFORDS  
Union Bag-Camp Paper Corp.  
Savannah, Ga.

C. V. SAHLIN  
Puget Sound Pulp & Timber Co.  
Bellingham, Wash.

A. A. JACOBI  
St. Regis Paper Co.  
Pensacola, Fla.

J. H. KEENER  
Champion Paper & Fibre Co.  
Canton, N. C.

Recommends policies and advises on forms and procedures dealing with the collection, compilation, and distribution of statistics on receipts, consumption, and inventories of pulpwood.

#### *Safety and Training Committee*

E. C. MELCHER, *Chairman*  
S. D. Warren Co.  
Cumberland Mills, Me.

A. L. BENNETT, *Vice Chairman*  
Armstrong Forest Co.  
Johnsonburg, Pa.

J. O. LANG  
Brown Co.  
Berlin, N. H.

H. J. DEABAY  
Great Northern Paper Co.  
Bangor, Me.

B. A. McMAHON  
East Texas Pulp & Paper Co.  
Silsbee, Tex.

C. A. STRICKLAND  
Gaylord Container Corp.  
Bogalusa, La.

M. D. LAMBELL  
International Paper Co.  
Mobile, Ala.

G. D. ELLIS  
Scott Paper Co.  
Waterville, Me.

T. M. COURTNEY  
Buckeye Cellulose Corp.  
Foley, Fla.

J. J. DOTTS  
Continental Can Co.  
Savannah, Ga.

E. J. ANDERSON  
Marathon Corp.  
L'Anse, Mich.

R. M. GILMORE  
Rayonier Inc.  
Hoquiam, Wash.

G. F. LARRABEE  
St. Regis Paper Co.  
Bucksport, Me.

B. M. OYSTER  
Weyerhaeuser Timber Co.  
Tacoma, Wash.

R. F. BOWER  
Hammermill Paper Co.  
Erie, Penna.

DON SMITH  
Armstrong Forest Co.  
Kane, Penna.

Coordinates and advises the Board and Officers in reference to the pro-

gram and activities of the Association, as it deals with training, safety, and supervision of manpower used in connection with the production and transportation of pulpwood.

#### *Forest Management Committee*

D. B. DEMERITT, *Chairman*  
Eastern Corp.  
Bangor, Maine

D. E. HESS, *Vice Chairman*  
Glatfelter Pulp Wood Co.  
Gettysburg, Penna.

C. S. HERR  
Brown Co.  
Berlin, N.H.

M. S. STANDISH  
Hudson Pulp & Paper Co.  
Augusta, Maine

J. L. HARTRANFT  
Oxford Paper Co.  
Rumford, Maine

JOHN RAE BURN  
Coosa River Newsprint Co.  
Coosa Pines, Ala.

R. M. TOWNSEND  
East Texas Pulp & Paper Co.  
Jasper, Texas

F. C. GRAGG  
International Paper Co.  
Georgetown, S.C.

R. W. LAW  
Olin Mathieson Chemical Corp.  
West Monroe, La.

S. A. BOUTWELL  
Continental Can Co.  
Savannah, Ga.

E. S. HURD  
Cons. Water Power & Paper Co.  
Rhineland, Wis.

J. B. MILLAR  
Kimberly-Clark Corp.  
Neenah, Wis.

B. G. BUELL  
Marathon Corp.  
Green Bay, Wis.

G. B. AMIDON  
Minnesota & Ontario Paper Co.  
Int'l Falls, Minn.

E. C. RETTIG  
Potlatch Forests, Inc.  
Lewiston, Idaho

E. P. DAVIS  
Rayonier Inc.  
Fernandina Beach, Fla.

PAUL DUNN  
St. Regis Paper Co.  
New York, N.Y.

E. F. HEACOX  
Weyerhaeuser Timber Co.  
Tacoma, Wash.

K. S. TROWBRIDGE  
North Carolina Pulp Co.  
Plymouth, N.C.

R. R. EDGAR  
Bowaters Southern Paper Corp.  
Calhoun, Tenn.

A. C. SHAW  
Champion Paper & Fibre Co.  
Hamilton, Ohio



As many leading mills have found...

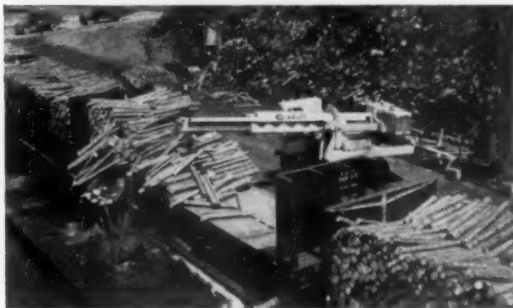
## Gradall will solve your pulpwood handling problems



At United States Gypsum's Greenville, Miss. plant, Gradall, with positive control grapple, more than doubled previous production records—unloaded and racked 26 cords of pulpwood from this barge in only one hour!



Gradall, used by a prominent Southern mill, pulls pulpwood from delivering railroad cars spotted on either side of the flume. It easily handles 3,300 cords each 24-hour period—the plant's daily capacity.



All pulpwood delivered by rail to West Virginia Pulp & Paper's Covington, Virginia plant is easily and quickly unloaded by a single Gradall. Mounted on a self-propelled wagon, it features a special blade for pushing logs from delivering railroad cars into a flume alongside the track.

No matter what your handling problem requires, Gradall gives the cost-cutting answer. Let us prove how it can *boost production while cutting costs* on your operations. Write us today for a free demonstration.

**Gradall®**  
A Product of  
**WARNER & SWASEY**  
CLEVELAND 3, OHIO



## ★ Helps you make more money handling pulpwood

- Rack car efficiently loaded from ONE side. Extra capacity of 13,000 pounds on far side of the car and a sixteen-foot reach.
- Simple design means extremely low maintenance costs and long machine life.
- Bumping is no problem with the sturdy stationary bumping plate.
- Big fuel savings and fast lift speed result from not having to raise and lower a heavy bumping plate with each load.
- Compact turning radius with Taylor's Tricycle Power Steering.
- Rugged design features proper weight distribution and extra safety features.

Let this machine start making money for you soon. Write us for complete information about the dependable **PULPWOOD DREAM.**

SOLVE YOUR PROBLEMS WITH OUR DREAMS

**Taylor MACHINE WORKS**

LOUISVILLE, MISSISSIPPI

W. H. HILDEBRAND

The Mead Corp.  
Chillicothe, Ohio

J. J. WILEY, JR.

West Virginia Pulp & Paper Co.  
Summerville, S.C.

Makes recommendations in regard to cooperating with and furnishing aid to government agencies and others in establishing policies and in carrying out practical measures of conservation of forest resources, especially as they affect growing and harvesting of pulpwood.

#### Research Committee

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Toledo, Ohio

W. D. SMITH, *Vice Chairman*

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Foley, Fla.

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Great Works, Me.

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L. E. GEORGE

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Marathon Corp.  
Meridian, Miss.

L. J. FOREST

Rayonier Inc.  
Hoquiam, Wash.

ROBERT DELONG

St. Regis Paper Co.  
Tacoma, Wash.

M. M. ARMSTRONG

N. Y. & Pennsylvania Co.  
Johnsonburg, Pa.

P. T. LANNAN, JR.

West Virginia Pulp & Paper Co.  
Georgetown, S.C.

Provides source of advice with reference to any projects involving research into the production of pulpwood or closely related fields. Usually the recommendations of this group would be made jointly with one of the other Standing Committees if the research projects under consideration deal specifically with functions covered by other Standing Committees.

#### Public Relations Committee

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Grand Rapids, Mich.

JOHN WHITE, *Vice Chairman*

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New York, N.Y.

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International Paper Co.  
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Bolton, N.C.

K. F. ADAMS

Halifax Paper Co., Inc.  
Roanoke Rapids, N.C.

K. N. KIFFE

Thilmany Pulp & Paper Co.  
Kaukauna, Wis.

R. W. OLIN

Potlatch Forests, Inc.  
Lewiston, Idaho

J. BREWSTER

St. Regis Paper Co.  
Pensacola, Fla.

Provides advice to the Board and Officers of the Association in reference to any program, activities, or publications which are directed to the attention of the general public in regard to the production of pulpwood.

#### Mechanization Committee

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Brewton, Ala.

W. M. MACCONNACHIE, *Vice*

*Chairman*  
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Cloquet, Minn.

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Great Works, Me.

T. N. BUSCH

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Mobile, Ala.

F. E. STABLER

Scott Paper Co.  
Mobile, Ala.

R. L. MOODIE

Scott Paper Co.  
Waterville, Me.

H. H. HOWARD

Johns-Manville Products Corp.  
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L. F. KALMAR

Continental Can Co.  
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Union Bag-Camp Paper Corp.  
Franklin, Va.

N. R. HARDING

Georgia Kraft Co.  
Rome, Ga.

T. G. HARRIS

Halifax Paper Co.  
Roanoke Rapids, N.C.

A. J. AUDEN

Abitibi Corp.  
Alpena, Mich.

A. F. KOLLER

American Box Board Co.  
Filer City, Mich.

H. R. PALMQUIST

Marathon Corp.  
Neenah, Wis.

HENRY ARD

Potlatch Forests, Inc.  
Lewiston, Idaho

H. D. PHILLIPS

St. Regis Paper Co.  
Deferiet, N.Y.

T. A. WALBRIDGE

Bowaters So. Paper Corp.  
Calhoun, Tenn.

H. L. SETZER

Champion Paper & Fibre Co.  
Canton, N.C.

CLARENCE SMALLEY

Armstrong Forest Co.  
Johnsonburg, Penna.

D. W. SOWERS, JR.

West Virginia Pulp & Paper Co.  
Hancock, Md.

EARNEST GOLDEN

Champion Paper & Fibre Co.  
Huntsville, Tex.

WILFRED MCKAY

Eastern Corp.  
Bangor, Me.

Provides for the coordination of the activities of the Technical Committees of the Association when necessary. Includes the current Chairmen of the Technical Committees and such other members of the Association as are designated by the Board.

#### Forest Economics Committee

- R. R. EDGAR, *Chairman*  
Bowaters So. Paper Corp.  
Calhoun, Tenn.
- L. A. WHITTLE, *Vice Chairman*  
Brunswick Pulp & Paper Co.  
Brunswick, Ga.
- D. B. DEMERITT  
Eastern Corp.  
Bangor, Me.
- EARL PORTER  
International Paper Co.  
Mobile, Ala.
- K. A. SWENNING  
Scott Paper Co.  
Chester, Pa.
- E. D. TESTON  
Union Bag-Camp Paper Corp.  
New York, N.Y.
- G. B. AMIDON  
Minnesota & Ontario Paper Co.  
International Falls, Minn.
- P. M. DUNN  
St. Regis Paper Co.  
New York, N.Y.
- J. W. MCSWINEY  
The Mead Corp.  
Dayton, Ohio
- D. W. CLEVERDON  
West Virginia Pulp & Paper Co.  
New York, N.Y.
- D. E. HESS  
Glatfelter Pulp Wood Co.  
Gettysburg, Pa.

Considers economic problems as they deal with forest taxation, forest finance, and financial analyses of programs dealing with forest land, forest growth, and current and future supplies of and demand for pulpwood.

#### Technical Committees

The five regional Technical Committees are made up of representatives of members operating within the region concerned. Lists of the personnel of these Committees are provided only to Association members. The current Chairmen are:

##### Lake States

- A. F. KOLLER  
American Box Board Co.  
Filer City, Mich.

##### Southwestern

- EARNEST GOLDEN  
Champion Paper & Fibre Co.  
Huntsville, Texas

##### Southeastern

- T. G. HARRIS  
Halifax Paper Co.  
Roanoke Rapids, N.C.

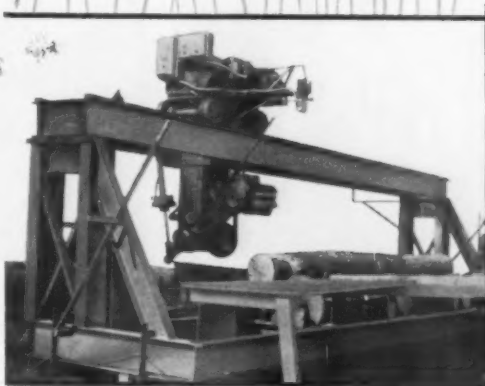
##### Northeastern

- W. M. MCKAY  
Eastern Corp.  
Bangor, Maine

##### Appalachian

- H. L. SETZER  
Champion Paper & Fibre Co.  
Canton, N.C.

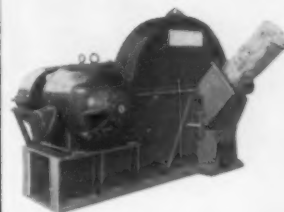
## ... turn wood waste into profit



#### Jackson Log Barker ...

The Jackson BEAVER log barker is designed for economical use at saw mills cutting as little as 7M board feet a day. However, in tests, this barker has cleaned logs at the rate of 18M feet a day, Doyle Scale. Elimination of fast wearing parts is a feature giving low maintenance cost.

## with Jackson WASTE UTILIZATION EQUIPMENT



#### Model CP 51 Chipper ...

Jackson's all-welded steel Core Chipper handles round cores and pulpwood up to 11 inches. Also available is Model SE 48 for slabs and edgings to 15 inches horizontally fed.

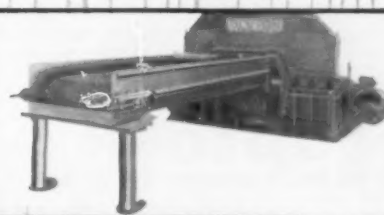
#### Chip Screen ...

Jackson's all-steel chip screen's four-bearing mounting and combination decks assure extra years of service. Jackson chip screens are available in various sizes to suit any type operation.



#### Veneer Chipper ...

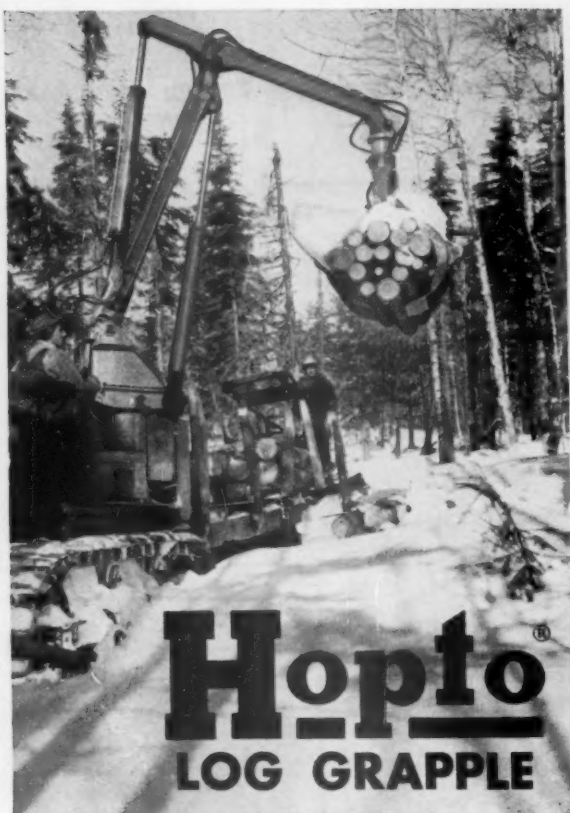
Jackson's all-steel veneer chipper produces chips of ideal size for paper mill and hardboard requirements. Jackson's superior construction means long life at low maintenance cost.



# JACKSON INDUSTRIES INCORPORATED

VENEER MACHINES  
DIVISION  
Birmingham, Alabama





## Loads 100 cords of strip-cut pulpwood per 8-hour day!

Four Hopto Log Grapple units load up to 500 cords of 8' pulpwood per day at the Mosher camp of Newaygo Timber Company south of Hearst, Ontario. Newaygo's Hoptos, mounted on D-6's and D-7's, operate over rough terrain in temperatures down to 60° below. Loading 2½ cord sleds, a single Hopto handles 100 cords of strip-cut and 130 cords of skid-cut in an eight hour day—including moving time. Man-hours have been cut 25% over previous methods.

The all-hydraulic Hopto is fast, safe, sure. No drums, cables, pulleys, or gear boxes . . . not even a trip line. A hydraulic grapple rotor enables operator to line up loaded grapple during swing; re-position for another bite during return cycle.

Hopto models for truck or crawler tractor mounting are available to meet your requirements . . . to help you cut your man-hours 25% or more! Write for complete information.

**Hopto** <sup>®</sup> a product of  
**WARNER & SWASEY**  
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## A SAFE INVESTMENT

In addition to the independent line action (an exclusive OWEN patent) that gives OWEN Grapples greater grabs and larger log loads, you will find them more dependable and real time and money savers. A complete line of models and sizes, in both 4-prong and open side types.

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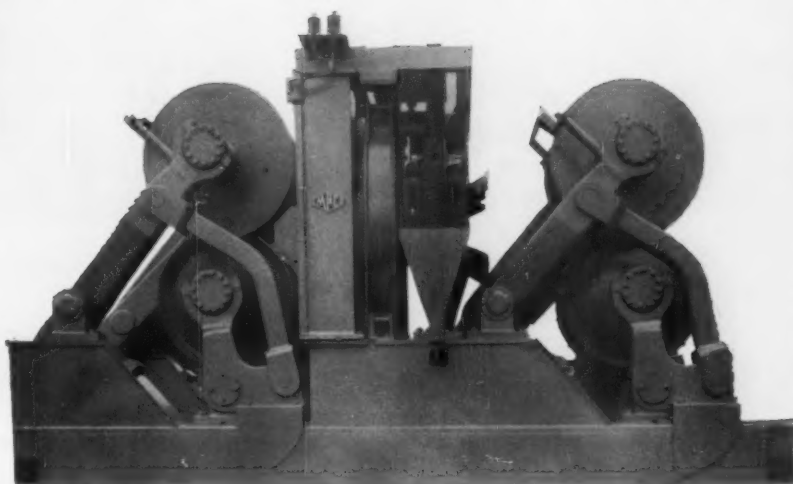
Lindsay & Niagara Wires  
 Knox Woolen Felts  
 Mount Vernon Dryer Felts  
 Carrier Rope, Splicing Tissues, Deckle  
 Webbing, Apron Cloth, Wire Brushes

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# **IMPCO Model S20-8 LOG BARKER**



"Impco" mechanical log barkers are built in a variety of sizes to handle virtually any length log up to twenty-four inches in diameter. These units are in daily operation on tough crooked hardwood as well as the easy-barking softwoods. Bulletin FI-1 gives the complete story on our machine for eight foot minimum log lengths.

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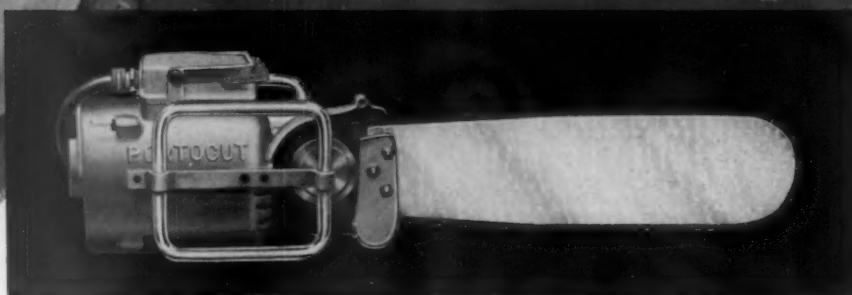
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# PORTOCUT

*balanced action*

## PRODUCTION CHAIN SAWS

For Continuous Heavy Duty Service in  
PULP, PILING, TIE, SHIP and LUMBER YARDS



Portocut efficiency  
does not drop over 5%  
with proper tooth care  
even after 10 years in  
service—the optimum in  
power saws.

Used for nearly 20 years in American industry, these Vulcan-Denver saws have been out-producing others two-to-one and more. Unique two-strand chain design provides 1/3 more cutters in the same length chain, cuts narrow 5/16" kerf, provides longer chain life. Available in Banjo style or with tensioning oil head with visi-metering oil feed. Standard blade lengths to 34 in.

Portocut electric saws develop up to 6 h.p. when needed, rated at 3 h.p. for continuous duty, 110 or 220 V A.C. 3-phase. Portocut air saws have Gardner-Denver 3½ h.p. radial air motors. Delivers high torque at all speeds, prevents stalling. See why Newport News and others get more out of Portocut saws; write for literature.

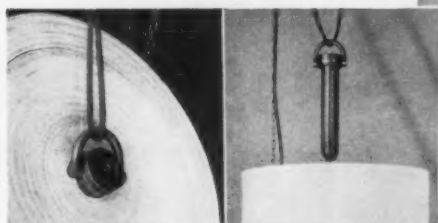
**VULCAN IRON WORKS CO.**

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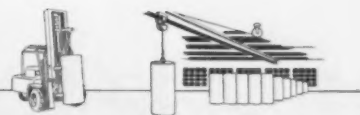


**CUT YOUR HANDLING COSTS  
INCREASE YOUR PROFITS with  
*Tidland's* NEW, LOW-COST  
**SURE-GRIP  
ROLL LIFT****

Here's a device that will revolutionize the handling of paper rolls in your plant. Will operate pneumatically or hydraulically and can be used either with a fork lift truck or overhead crane.



The Tidland SURE-GRIP ROLL LIFT is available in a range of sizes to fit cores from 2 1/2" diameter up, capable of lifting rolls to 6,000 pounds in weight.



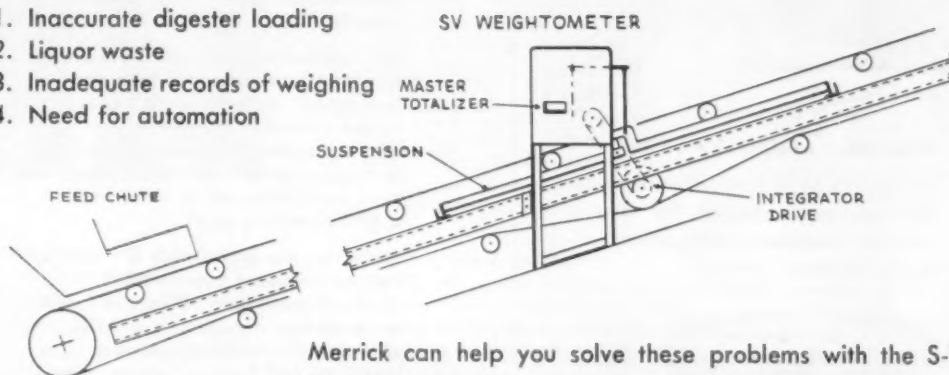
- 1. REPLACES "GRAB TRUCK" IN MANY INSTANCES . . .** the Sure-Grip Roll Lift handles paper rolls faster and more efficiently.
- 2. SAVES STORAGE SPACE . . .** Sure-Grip Roll Lift permits storing of rolls "side-by-side" . . . no room needed between rolls for pickup with "grab truck" or similar device.
- 3. SAVES LABOR . . .** with Sure-Grip Roll Lift fitted on the fork lift truck only the operator is needed to do the job. Operating the "Roll Lift" from the truck's hydraulic system, the operator releases and engages the roll lift by a simple valve.
- 4. NO CORE OR ROLL DAMAGE . . .** the Sure-Grip Roll Lift is built on the same principle as Tidland's famous pneumatic, leaf-type shafts. The serrated steel or rubber covered leaves, positively expanded and contracted by the encased rubber tube, uniformly grip the inside of the core, assuring no slipping in the lifting process.

Order today . . . or if you want more information, write, wire, or call

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**MACHINE COMPANY**  
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## Have your Pulp Mill Costs Increased? due to —

1. Inaccurate digester loading
2. Liquor waste
3. Inadequate records of weighing
4. Need for automation



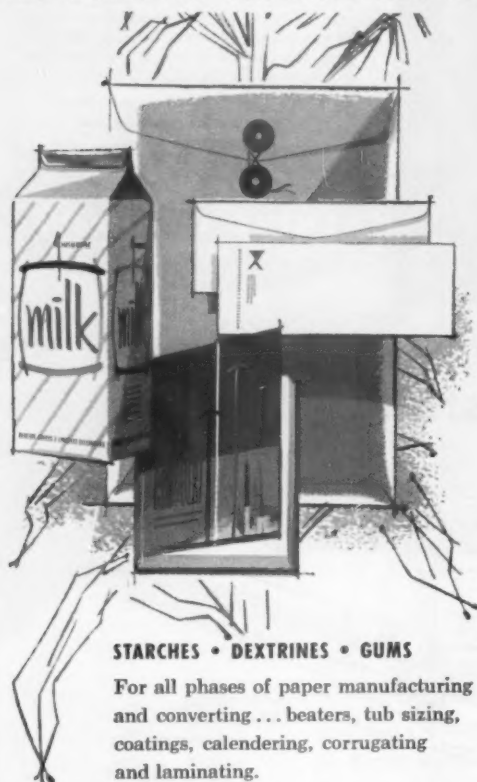
Merrick can help you solve these problems with the S-V Weightometer which can provide automation to accurately charge digesters, control addition of liquor, totalize and record weights continuously. Post-war Methods at Pre-War Price Levels. Inquire about the Feedoweight for Proportioning Salt Cake.

**MERRICK SCALE MFG. CO.**

180 Autumn Street, Passaic, N.J.



Look what happened to  
the corn we took off the cob



**STARCHES • DEXTRINES • GUMS**

For all phases of paper manufacturing  
and converting... beaters, tub sizing,  
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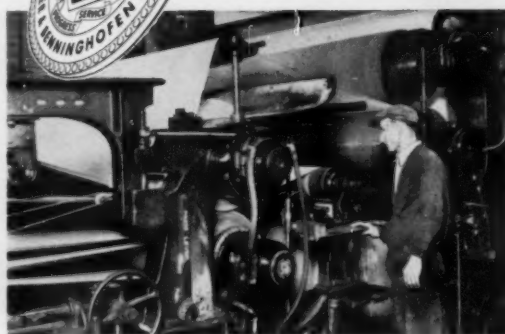
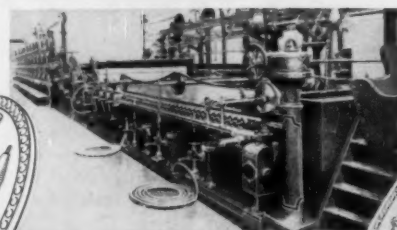
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Ham Feltz says... "Today's  
**HAMILTON FELTS**, like  
Today's Paper Making  
Machines, are 100  
Years **BETTER!**"



Every year — since our founding  
a hundred years ago —  
Hamilton Felts have not only  
kept pace with the great strides  
made in the technology of paper  
making but, in many cases, our felts  
have helped make these advances  
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Our continuing program of technical  
improvement produces felts that  
last longer, remove more water  
faster — makes it possible to  
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at higher speeds and lower costs than  
was ever dreamed of — even  
a half a century ago!

Today — we can supply a Hamilton  
Felt of standard construction  
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your specific problem. Just ask your  
Hamilton Felt Service Salesman — or  
write to us — today!



**SHULER & BENNINGHOFEN**  
**HAMILTON, OHIO**

## Northeast Memo from MRC

KURTZ M. HANSON, president, Champion-International Co., Lawrence, Mass., has resigned to "take a long rest." C-I was recently purchased by Oxford Paper Co. . . . ROBERT C. BROWN steps up from group leader, coated papers research dept., at Oxford's Rumford, Me., mill, to be supt. of its new North Star Coater now being installed. . . . MERTON C. AUSTIN will be day foreman for the coater; JAMES D. MARR and WALTER P. YARNUSH, are promoted to tour supts., nights, paper machines. . . .

LESTER "LES" J. SMITH has been promoted from gen. supt. to asst. to the mgr., of pulp and paper production, St. Regis Paper Co. . . . FRED SPRAGUE steps up from post of chief chemist at the Bucksport, Me., mill of St. Regis to be mfg. supt. at Deferiet, N. Y. . . . DICK MURTAUGH moves from project engineer at Deferiet and chief chemist at the Herring's mill to the papermaking research group of the Central Technical dept., located at Carthage. . . . RICHARD RIVERS is promoted to project engineer and EDGAR WAFUL to supervisor of the technical service dept. . . .



Enders ..... Rose

### Rose Elected President, Enders Chairman, of B-D Pulp

Election of Elmer J. Rose as president of Bulkley Dunton Pulp Co., Inc., is announced by Fred Enders, who became chairman of the board and chief executive officer of the company. Mr. Rose joined Bulkley Dunton in 1937, was elected a vice president in 1945, and executive vice president in 1955. The Bulkley Dunton Organization, of which the pulp company is a principal unit, has branch offices and representatives in 60 cities in the U. S., Europe, Latin America and the Far East. Bulkley Dunton is observing its 125th anniversary this year.

CALVIN J. REIS is now pulping technologist in the research dept., New York and Pennsylvania Co. He was a chemist at Champion Paper & Fibre Co., Canton,

N. C. . . . RUSSELL HAMOR is now power plant engineer at Nypen's Lock Haven mill. . . . WARREN BITNER moves up to supercalender supervisor; KEN BUTTORF, to finishing and shipping supervisor. . . .

LEROY BAUER, widely known representative of The Bauer Bros. in the east, was killed recently in a private airplane crash. He was not related to the Bauers for which the company was named. . . . Appleton Machine Co. appointed FRANK C. ARNOLD northeastern representative in New England and New York state with hq. in Henderson Harbor, N. Y. Mr. Arnold was formerly a sales engineer for Pusey and Jones Corp. . . .

SCOTT S. HOFFMAN is now mgr. of Hammermill Paper Co.'s new manufacturing services div. KARL E. VOGEL succeeds him as pulp mill supt. . . . JOHN A. SECUR has been elected vice pres., Riegel Paper Corp. . . .

HAROLD F. WOOD JR. is pres. of the newly formed H. F. Wood Co., an industrial marketing firm. WARD E. DUCHENE is v.p. and gen. mgr. and H. F. WOOD SR. is v.p. . . . CLINTON F. KUCERA is mgr. of the N.Y. district office of the Allis-Chalmers Industries group, succeeding N. W. LANDIS, recently named mgr. of the Allis-Chalmers Northeast region. . . .

ROBERT D. BUTLER is now asst. to sales mgr.-plug valves for W-K-M, div. of ACF Industries, Inc. . . . THEODORE M. DILLAWAY is secy. of Buffalo Forge Co., succeeding HERBERT S. WHITING, retired. . . . DEWEY H. NELSON has been promoted to div. mgr. of the Becco Chemical div., Food Machinery and Chemical Corp. . . . EDWARD M. ROTH JR. is new mgr. of Becco Chemical div.'s upper New York sales territory with hq. at the firm's main plant, Sawyer Ave., Tonawanda, N. Y. JOHN R. HOPKINS was promoted to asst. sales mgr. of Becco Chemical div.

### Norm Weil in New Office

Norman O. Weil, vice president, The W. S. Tyler Co., manufacturers of screens, writes that he has moved offices to a new address in New York City-750 Third Ave., 22nd Floor, New York 17, N.Y. Phone: YUkon 6-9070. His many friends will be pleased to know he is fully recovered from recent illness.

## Midwest

### Memo from DGC

IRA F. BOYCE was elected vice pres. of Consolidated Water Power & Paper Co., Wisconsin Rapids, Wis. He is a director and was formerly asst. to the pres. EUGENE ABEGG was elected a director

filling the vacancy created by the recent death of RALPH R. COLE. DON C. NEPPER has joined Consolidated's tech. dept. as asst. chief, quality analysis group. He had been a chemist for Allied Paper Mills, Kalamazoo, Mich., since 1956. GORDON RAASCH was appointed asst. yard foreman at the Wisconsin Rapids div., succeeding AL HAFFERMAN who was named night supt. . . .



### Dick Trelfa, Perkins-Goodwin

Louis Calder, president of Perkins-Goodwin Co., international pulp and paper marketing management organization, announces that R. T. Trelfa has joined the company as director of technical services. After graduating from Univ. of Michigan in 1941, he joined the Hercules Powder Co., and over the next ten years filled important assignments in research and development in their Paper Makers' Chemical Dept. In 1952 he joined Watervliet Paper Co. as technical director and advanced to operating supt., and asst. manager and finally plant manager. In his new position, he will headquarter in Kalamazoo, Mich., and his services will be available to mills Perkins-Goodwin represents and customers it serves.

RICHARD T. TRELFA, recently with Watervliet Paper Co., now technical director, Perkins-Goodwin Co., was elected chairman of the Michigan div. of the Superintendents Assn. Also elected were LESLIE JUSTICE, Sutherland Paper Co., Kalamazoo, Mich., 1st vice chairman; CHARLES RUSSELL, S. D. Warren Co., Muskegon, Mich., 2nd vice chairman; and EUGENE BAKER, National Gypsum Co., Kalamazoo, Mich., secy.-treas. RAYMOND L. BARTON, Hamilton Paper Co., Michigan div., Plainwell, Mich., presented FRANK B. EILERS, Kalamazoo, Mich., with a certificate of life membership in the association. Present at a dinner meeting to honor Mr. Eilers were M. D. ORR, JOHN KOESTER and DANIEL SPENCER from Ott Felt and A. A. NYITRAY and JOSEPH PARKER from Eastwood-Nealley. . . .

HARLEY NELSON was appointed tech. director for the Kalamazoo div. of Allied Paper Corp. WALTER VASTRICK, formerly



## Strictly Personal

director of quality control, was promoted to asst. tech. director and CLAYTON RUSSELL became tech. control supt. . . . RALPH A. ATKINS was elected vice pres., mfg., of Whiting-Plover Paper Co., Stevens Point, Wis. Mr. Atkins, a paper industry veteran, joined Whiting-Plover a year and a half ago as mill mgr. He has a m.s. degree from the Institute of Paper Chemistry, Appleton, Wis. . . .

W. WALKER LEWIS JR. was elected gen. counsel of The Mead Corp., Dayton, O.

He retains his position as secy. Mr. Lewis is a 1936 graduate of Dartmouth. LLOYD E. STEPHEN was elected exec. vice pres. for Mead Papers, Inc., subsidiary of The Mead Corp. Mr. Stephen was born in Sault Sainte Marie, Ont., and graduated from McGill in 1923. . . . C. L. BACHELDER, veteran sales rep for Hercules Powder Co.'s PMC dept. retires June 30 after 34 years service. Well known in the midwest industry, "Bach" Bachelder's home is in Kalamazoo, Mich., his base

since joining the company in 1924. He is a graduate of Bowdoin College and took graduate work at Wisconsin. . . .



**John M. Musser, New Chairman of The Northwest Paper Co.**

Mr. Musser, director since 1936, succeeds Frederick K. Weyerhaeuser, who requested he be relieved of chairmanship. Dick Bell of Atlantic, Ia., and W. John Driscoll of St. Paul, Minn., were elected new directors. Re-elected directors are: Norton Clapp, Seattle; Charles C. Cook, Edwin W. Davis, Willis S. Hutchinson, Mr. Musser, J. P. Weyerhaeuser III, F. Weyerhaeuser, all of St. Paul; Ralph S. Schmitt, Cleveland; Thomas B. Stibolt, Chicago, and Harry T. Kendall, Jr., Cloquet, Minn. Officers re-elected: President, Harry T. Kendall, Jr.; vice presidents, Mace V. Harris, Bernard W. McEachern and Roy I. Nilsen; treasurer, Albin R. Boquist; secretary, Lloyd N. Benson; assistant treas.—Clarence W. Jensen; asst. secy.—William M. MacConnachie, Jr.

A. E. STALEY JR. was elected chairman and chief exec. officer of the A. E. Staley Mfg. Co. E. K. SCHEITER was elected pres. and DONALD E. NORDLUND was elected a vice pres., director and member of the exec. committee. Mr. Staley has been with the company 33 years and had been pres. since 1932. . . . DEAN D. MCKINNEY was appointed personnel mgr. of Watervliet Paper Co., Watervliet, Mich. He was formerly educational supervisor of Watervliet's parent Hammermill Paper Co. . . . E. WILLIAM PETRICH, Howard Paper Mills, Dayton, O., was elected chairman of Ohio TAPPI. Others elected are: VIRGIL E. PERRY, Harding-Jones Paper Co., Middletown, O., vice chairman; KENNETH GRASSE, Howard Paper Co., corresponding secy.; FRANK CESSNA, Sorg Paper Co., Middletown, O., recording secy.; CHARLES S. SWEITZER, Diamond-Gardner Corp., Middletown, program chairman; WILLIAM DIETZ, E. I. duPont de Nemours & Co., Dayton, treas.; and BURTON P. BAILEY, The Mead Corp., Chillicothe, editor-Ohio TAPPI. . . .

### Meddick is President and Mgr. of Elwell-Parker

W. A. Meddick, 22-year veteran of The Elwell-Parker Electric Co., Cleveland, is its new president and general manager, succeeding Sheldon K. Towson, who died recently. Sheldon K. Towson, Jr., was elected vice president and assistant general manager.

## Rader Quality Goes Beyond Conveyor Equipment!

Rader Pneumatics does more than sell pneumatic conveying systems. Rader employs top quality engineers who know the problems and solutions concerned with blowing chips, bark, hog fuel, sawdust and other bulk materials under all kinds of conditions.

When you come to Rader for help with a conveying problem, one of Rader's engineers will survey your particular needs and work with you on layout and design. He will figure your requirements exactly so that you are assured of getting a conveying system that will do the job. His experience in the handling of purchased chips, both at the chip producer and at the receiving pulp mill, enables him to save you money not only in first costs but in operating and maintenance costs.

Rader service doesn't stop here! These same engineers work closely with customers in supervising the installation of Rader conveying equipment. They also make periodic inspections of Rader equipment after installation to make sure it's functioning properly.

Our engineers are available at any time to help you with any conveying problem you might have. Feel free to ask for a Rader engineer to call on you regarding maintenance of your present system, expanding a system, or installation of new equipment.

## RADER PNEUMATICS, INC.

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California

Preston, Ontario, Canada

4645 Main St.,

Vancouver, B.C.

Box 3722 Municipal

Airport, Memphis, Tenn.

#### Folding Box Assn. Chairmen

J. N. ANDREWS, Ohio Boxboard Co., and president of the Folding Box Assn., announces these committee chairmen for the association: DONALD BOYLAN, accounting; HAROLD E. PIERCE, bakery package; ROBERT MENSCHAUSEN, industrial relations; HERBERT C. BERNARD, public relations; ROBERT C. NEFF, statistics; D. A. FORSBERG, technical and production; and CLAUDE L. FENSTERMAKER, traffic.



Fearing ..... Graves ..... Graham

#### Promoted in I. P. Co.

Lamar M. Fearing has been named vice pres. with general administrative responsibilities, International Paper Co. Succeeding him as asst. general sales mgr. is Wallace K. Graves. In turn, Larrance E. Graham, former mgr. of merchant sales, succeeds Mr. Graves as fine paper and bleached board sales mgr.

## Southern

### Memo from WFD

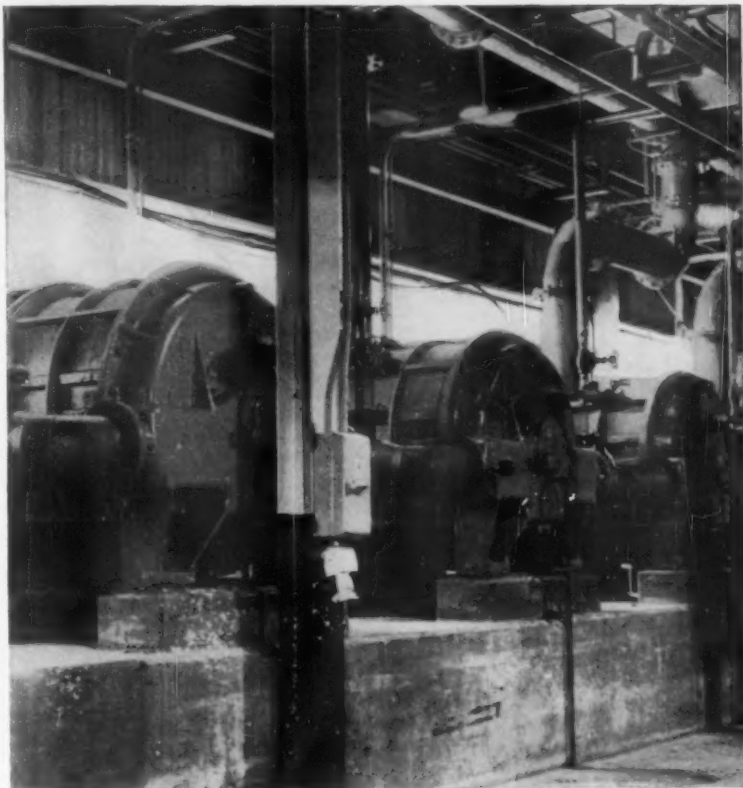
The Southern Exposure: One of North Carolina's most distinguished jurists, Superior Court Judge DAN K. MOORE of Sylva, has joined Champion Paper & Fibre's Carolina division as a counselor. . . . VIRGINIA BLAKEMORE, secretary to Champion's MIKE KOURY, asst. div. mgr. at Pasadena, was elected president of the National Secretaries Association.

ADO A. ZANDO, dist. engr. at St. Regis' Deferiet mill for the past seven years has been transferred to the central engineering dept. at Jacksonville, Fla. A native of Belluno, Italy, Mr. Zando came to this country when he was eight years old, worked his way through Clarkson College, joined St. Regis upon graduation. . . . DEAN A. MILLER, mgr. of Chicago Bridge & Iron's Birmingham, Ala., office, retired May 1 after 39 years with the company. Chicago Bridge has moved its Houston, Tex., facilities to an 85-acre site northeast of Houston, giving more room for expansion.

J. E. Rhoads & Sons, Wilmington, Del., appointed J. WARREN MITCHELL as southern mgr. with hq in Atlanta, Ga. . . .

During a recent chat with Georgia Tech's football coach BOBBY DODD, Bobby made the following sage comment—which might easily be applied to many walks of life. Says Bobby: "The worse thing that can happen to a man is to be

## What, actually, do Vacuum Pumps on paper machines handle?



Paper mill engineers know that it is actually a mixture of air and water vapor, but the custom of rating vacuum pumps in terms of air capacity alone causes this important fact to be frequently overlooked.

The presence of this water vapor causes a considerable reduction of the effective air handling capacity of any vacuum pump except the Nash. In the Nash Vacuum Pump the bulk of this water vapor is effectively condensed, due to the Nash operating principle. The air handling capacity of the Nash is therefore not reduced.

That is one of the reasons why Nash Vacuum Pumps are standard in over a thousand leading Paper Mills.

## NASH ENGINEERING COMPANY

443 WILSON ROAD, SO. NORWALK, CONN.

overrated. Same's true of a football team—or anything else for that matter. If the experts predict you're going to win 12 out of 12 and you lose one, you're a bunch of bums. But if they predict you're going to lose 10 out of 12 and you only lose 9—you've made a tremendous uphill climb."

GLEN A. CHRISTENSEN, of Rayonier, has been transferred from Hoquiam, Wash., to Jesup, Ga., as shift supt. . . . KLAUS ROSENFELD is on the engineering research staff at West Virginia's Covington mill. . . . ED SHEPPARD has joined the staff of Gulf States Paper Corp. at Demopolis. He was formerly a member of the industrial engineering staff of National Container. . . . JACKSON J. SMILIE has joined the staff of Container Corp. of America at Brewton, Ala., as a technical trainee. He attended the U. of Ala. . . .

Notes from a travelin' man's diary: Our candidate for the city in the U.S. with the finest sense of humor (if a city can have a sense of humor) is West Monroe, La., home of the Brown Paper div. of Olin Mathieson. The sign at the edge of town reads: "Welcome to West Monroe, La. 26,715 friendly people—and one old grouch." Selah. . . .

**Lloyd Heard, Bauer Dist. Mgr**



Takes over as new manager of machinery sales for Southeastern and Southern territory for Bauer Bros. Co., Springfield, O. He has had many years experience in kraft mills, from Ontanagon, Mich., to Longview, Wash., where he was project engineer in expansion of Longview Fibre Co. He is opening offices in Jacksonville, Fla. PATRICK J. SHOVLIN, son of R. J. Shouvin, exec. vice pres., will assist Mr. Heard. The letter also will supervise Bauer's Memphis office under HERMAN FRYER.

**New Huyck Treasurer**

Edwin P. Madsen has taken over duties as F. C. Huyck and Sons treasurer with offices in New York City. He succeeds Rod. T. Clarke who relinquishes that office to become Felt Division vice president.

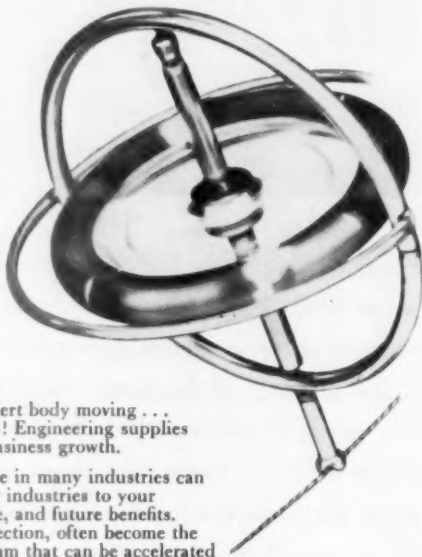
W. E. SOLES, vice pres. and gen. mgr. of Anglo-Canadian Pulp & Paper Mills, Quebec City, since 1954, has been elected president following the retirement, at his own request, of ELLIOTT M. LITTLE from that office. Mr. Little, the driving force behind the big Eastern Canadian company for many years, is now chairman of the board. . . .

D. W. AMBRIDGE, president and gen. mgr. of Abitibi Power & Paper Co., Toronto, has succeeded HAROLD S. FOLEY, chairman of the Powell River Co., as chairman of the Newsprint Information Committee, organized two years ago as a clearing house for information. . . .

New officers elected by Pacific Coast branch, Technical Section of Canadian P&P Assn.: DR. JOHN L. KEAYS, Powell River Co. Ltd., succeeds DR. MORRIS WAYMAN, Columbia Cellulose Co. Ltd., as chairman; J. H. SHUMKA, Harnac div. MacMillan & Bloedel Ltd., 1st vice chairman, EDWIN L. LOVELL, Alaska Pine & Cellulose, 2nd vice chairman, and R. R. ALPEN, of C. C. Moore & Co., re-elected secretary-treasurer. . . .

JAMES MOTHERWELL, Sandwell & Co. engineer, has been commuting between head office in Vancouver, B.C., and Tuxtepec, where he has helped supervise construction of the \$12,000,000 pulp and paper mill owned by Fabrica de Papel Tuxtepec. . . . L. S. MACKERSEY, Montreal banker, and BERNARD H. RIDDER, Jr. and RUSS STEWART, of a publishing organization, are new directors of Great Lakes Paper Co. . . .

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WORKS  
TWO  
WAYS**



External force is needed to start an inert body moving . . . or to accelerate one already in motion! Engineering supplies this outside force to stimulate your business growth.

The professional engineer's experience in many industries can often help you adapt ideas from other industries to your particular problems . . . for immediate, and future benefits. Minor improvements, in the right direction, often become the first short steps in the ultimate program that can be accelerated when the time is right for you.

The independent, impartial engineer helps you develop a sound long range plan consistent with your individual needs.

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ENGINEERS FOR 56 YEARS



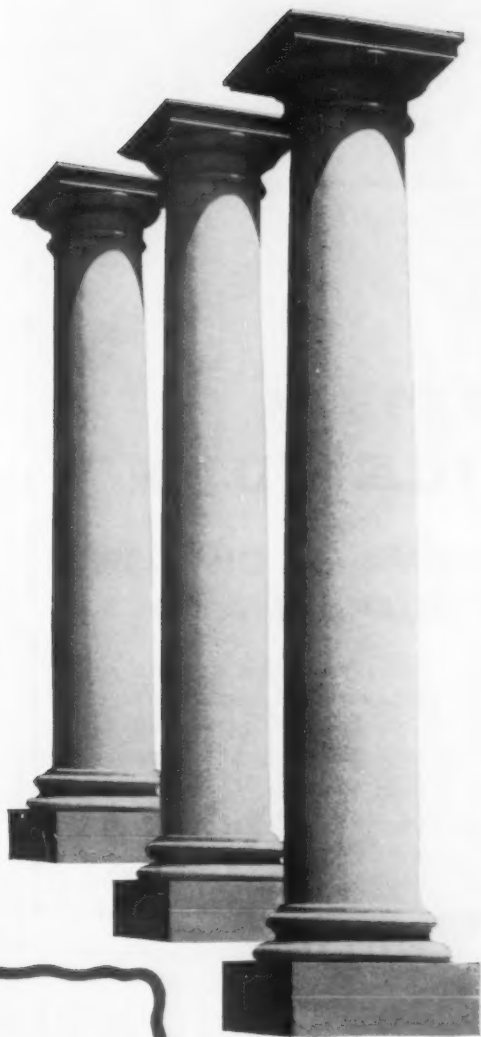
A DEPARTMENTALIZED ENGINEERING ORGANIZATION SERVING • BUSINESS • COMMERCE • INDUSTRY



**Harry K. Collinge, Hinton Mgr.**

Mr. Collinge, new resident manager of the bleached sulfate pulp mill of North Western Pulp and Power Ltd., Hinton, Alberta, had been engaged since 1952 in private practice as a consultant to the pulp and paper industry. He also did work with the Food and Agricultural Organization and the Technical Assistance Administration of the United Nations. From 1932-52 he was with Howard Smith Mills, finally as general mgr., Canada Paper Co. to enter private practice. He is a graduate of Portsmouth and London University Imperial College of Science and Technology in England. In his new post, he succeeds A. Thomas Easley who resigned.





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**PUGET SOUND PULP and TIMBER CO.  
BELLINGHAM • WASHINGTON**

## Strictly Personal

B. M. HOFFMEISTER, who resigned recently as chairman of MacMillan & Bloedel, has been named agent-general for British Columbia in London and he took over his new duties following a visit to the World's Fair in Brussels. With M&B he rose to the top from a yard job at a company sawmill. . . . CARL M. FELLOWS, former senior vice pres. of Fitchburg Paper Co. in Massachusetts, has joined St. Lawrence Corp. in Montreal as exec. vice pres. . . . TOM CROSSMAN has been named personnel assistant, Dryden Paper Co., Dryden, Ont., accord-

ing to announcement by Mill Mgr. D. H. MAUNSELL. He will be directly responsible to NORMAN W. HARDY, personnel supervisor. . . .

LEONARD MURPHY is new plant engineer for Powell River Co., Powell River, B.C., succeeding the late GILBERT D'Aoust. His appointment came just ten years after he had been selected for the company's undergraduate development program. He joined the engineering staff in 1951 after three preceding summers in the mill while a University of B.C. student.



Gillean ..... Quattrocchi

### Promoted in Howard Smith Cos.

Watson Gillean has been named secretary of Howard Smith Paper Mills. He joined the company in 1942. He will also serve as secretary of various Howard Smith subsidiaries. Samuel J. Quattrocchi, with several U.S. companies before moving to Canada in 1954 to become development engineer for Alliance Paper Mills, Merritt, Ont., has been made vice president and gen. mgr. of that company, according to Pres. D. S. Abbott. Mr. Quattrocchi is a native of Messina, Italy, but was educated in the U.S. and graduated from Rensselaer Polytechnic in 1931 when he joined International Paper Co.

### Pacific

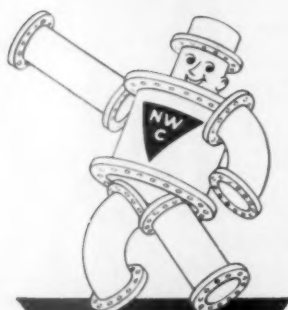
#### Memo from LHB

R. H. VAN SAUN, gen. mgr. of Container Corp.'s corrugating plant in Portland ever since it opened nearly 10 yrs. ago, transfers to West Germany as gen. mgr. of recently acquired plant in Nuernberg operated by Europa Carton A.S., a subsidiary of CCA. . . . ESCO men become directors of the company—BILL DE WEESE, vice pres. of sales and mgr. of metallurgical div., HENRY SWIGERT, of Portland sales dist. . . . Renowned ham radio operator CARL BRAUN, now retired and formerly vice pres.-mill mgr. of Publishers' Paper, recently observed his 50th anniversary in radio. He was radioman on USS Oregon in World War I and owns its radio shack, having bought it when the ship was dismantled. . . .

RUSSELL R. MAJOR, who joined St. Regis Paper Co. in 1946 as asst. comptroller, has been appointed regional comptroller at Tacoma and asst. comptroller for the entire company. . . . Employees of Weyerhaeuser Timber Co.'s Cottage Grove mill have formed a "Golden Rule Club," members authorizing paycheck deductions for a kitty established for community charities and employe hardship cases. . . .

JEANNE MEYER, daughter of DR. WALTER MEYER, Central Research Dept., Crown Z Camas, was chosen by American Field Service to spend the summer abroad and departed for Norway June 11. . . . CZ Camas maintenance dept. promotions: JAMES C. LITTLE, formerly rigger foreman, becomes maintenance supervisor of woodmill area; VERNON MORGAN promoted to maintenance supervisor of sul-

## CUSTOM FABRICATIONS



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PORTLAND 12, OREGON

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fit, bleach plant and groundwood area; FRANK LEHN, general maintenance foreman, advances to general maintenance supervisor. . . . JAMES L. QUILLIN was recently promoted to gen. foreman of finishing at Simpson Paper Co. . . .

#### New President of Potlatch



Robert E. Bundy, who joined Potlatch Forests Inc., Lewiston, Ida., as exec. vice pres. in 1956, succeeds the late William P. Davis as pres.-gen. mgr. and becomes member of board. After graduating from U. of Washington college of forestry, Mr. Bundy joined Crown Zellerbach, later going with Fibreboard, where he became exec. vice pres. in 1952.



Giersch . . . . . Larson

#### New Chiefs for PASC

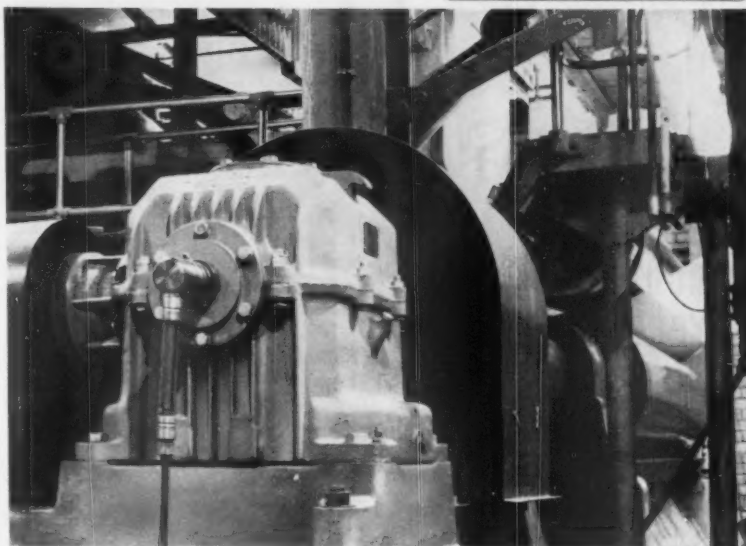
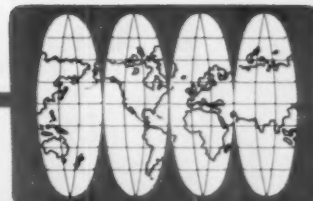
The smiling gentleman on left is Lauron Giersch of Crown Zellerbach Corp., Los Angeles, and he's smiling because he has just been elected chairman of the Paper-makers & Associates of Southern California. On the right is Dr. L. L. Larson of Potlatch Forests, Pomona, Calif., who smiles because he has just gotten out from under the chairmanship after a year's service.

The new vice-chairman is Wm. Streaker of Fibreboard Paper Products Corp., and the new secretary is Oscar Pierce of Crown Zellerbach. New program committee: Russ Gagnier, Nopco Chemical Co., chairman; Dan Snell, Robert Gair; Dr. Larson; Ron Boedeker, Container Corp., and Perry Dudley, Reliance Electric & Mfg. Co. New membership committee: Earl Arnett, Arnett Chemical, chairman; Ted Smock, General Dyestuff; Charles Klein, U.S. Gypsum; Mike Kotoff, Crown Zellerbach; Helge Holm, Potlatch Forests; Otto Sass, Flintkote Co.; and Ted Markov, Fibreboard.

PAUL V. MILLARD, asst. to supervisor of product quality and development and administrator of the suggestion plan, CZ Camas, retires with more than 30 years service; D. E. "BUD" HALL succeeds him as plan coordinator. . . . Purchasing

## DAVID BROWN

at work  
around the world



This Canadian installation is typical of the cooperative service of David Brown companies around the world. Write for details.

### ...HELPING TO SMOOTH THE WORK OF A SMOOTHING PRESS!

It always matters how you gear a new installation such as this smoothing press at Rolland Paper Company's St. Jerome, Quebec mill. The gear in this case is a David Brown 17" spiral bevel unit — one of many used on the new machines by Millspau, famous for paper industry equipment.

This modern right angle drive installation can run continuously, hour after hour. Its 4 to 1 ratio will transmit 200 hp at 2,000 rpm pinion speed — with a high (98%) efficiency. These compact and sturdy spiral bevel gears are made in sizes from 6" to 60" by David Brown Industries.

The popular fan-cooled Radicons are also widely used in the paper industry — specified by original equipment manufacturers. They have learned Radicon's ability to withstand extremes of temperature, dust, dirt and rain — with initial low cost, and low maintenance.

Immediate delivery on Radicons 3" to 14" all standard ratios from 5:1 to 60:1. Radicon complete drives supplied by all authorized David Brown factory branches and distributors.



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999 Beecher Street, San Leandro, California  
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1224 S.W. Morrison St., Portland, Oregon





## QUIT WORRYING ABOUT SYPHON TROUBLES



Adopt the Midwest Auto-Flex — the syphon that employs a spring and brace to hold the end of the pipe at proper distance from the bottom of the dryer. No possibility of the pipe shifting position, hence proper evacuation of water and air at all times.

If that isn't enough to convince, realize that the cantilever leverage exerted is less than  $\frac{1}{2}$  that exerted by bent pipe syphons, avoiding drag on the journal and preventing the excessive wear that leads to trouble.

Fits all steam joints and quickly installed. Effective at all operating speeds.

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FULTON  
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DAYTON, OHIO**

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ton—Toronto—Port Arthur—Vancouver

## PULP & PAPER

## Strictly Personal

Agents Assn. of Oregon elected RUFUS B. TOBEY, Crown Z Portland, as 2d vice pres., WYMAN F. MILLS, Ore. Div. Simpson Logging Co., a director. . . . GEORGE E. SCHWARTZ, who joined the company as asst. accountant in 1953, succeeds CECIL R. ADAMS, retired, as chief acct. and asst. treas. . . . RAY WILLIAMS, machine tender, Western Kraft, Albany, advances to asst. foreman. . . .

W. P. "PHIL" MORGAN, formerly asst. supt. in the CZ Port Townsend bag dept., joins the firm's Camas mill as administrative asst. to bag factory supt. W. O. BEATON. . . . C. EDWARD TAYLOR, who recently joined Georgia-Pacific Paper as technical asst. to gen. supt., is promoted to asst. paper mill supt. . . .

JERRY KELLEY, job training supervisor, Antioch, Calif., carton plant, Fibreboard Paper Products Corp., has been transferred to Denver where he will take over as manager of the Denver carton plant. . . . KEN KEARCHER, training coordinator, Portland carton plant, was appointed supt. of the plant. AL SHADE, product mgr., containers, mfg. services has been named mgr. of the Vernon, Calif., carton plant. RUSS ROGERS, training supervisor, Stockton, Calif., carton plant, has been made supt., Vernon plant. Mr. Rogers replaces HERB BRIDGEN, reassigned to a position

where his 32 years experience will benefit the company. Mr. Rogers replaces PETE GEIER, reassigned within the production organization. TOM MARTIN, tech. supt., Vernon board mill, has been made admin. asst. to Ralph McDonald, gen. mgr., paperboard div. Mr. Martin is replaced at Vernon by KEN BUSSE, tech. supt. San Joaquin board mill.

DOUG GILES, chief storekeeper of Ketchikan Pulp, who is also Capt. Doug Giles, commanding officer, Co. A. 180th Engr. Bn., was presented with a Certificate of Appreciation signed by W. A. BRUCKER, Sec'y of the Army, and by GEN. MUDGETT, CGUSA, Alaska, for increasing the strength of his unit by 100% during the first 3 months of 1958. . . .

### New Name for Old Firm

Hooker Chemical Corp. is the new name adopted by Hooker Electrochemical Co. Announcement states the new name more accurately represents Hooker's wide variety of chemicals and chemically-made plastics, no longer limited to the products of electrochemical manufacture.

Also, on May 29, consolidation of Shea Chemical Corp. into Hooker Chemical Corp. was effected.

## Greater Production of Higher Quality Pulp

- *in Less Time*
- *at Lower Cost*

This is the end result of the various processes and equipment which we have installed in pulp mills throughout North America. Send us details of your requirements.

**Chemipulp Process Inc.**  
Watertown, N. Y.

**Associated with**  
**Chemipulp Process Ltd., 253 Ontario St., Kingston, Ont.**

•  
**Pacific Coast Representative**  
**A. H. Lundberg, Inc., P. O. Box 202, Mercer Island, Wash.**

## Pulpwood Personals

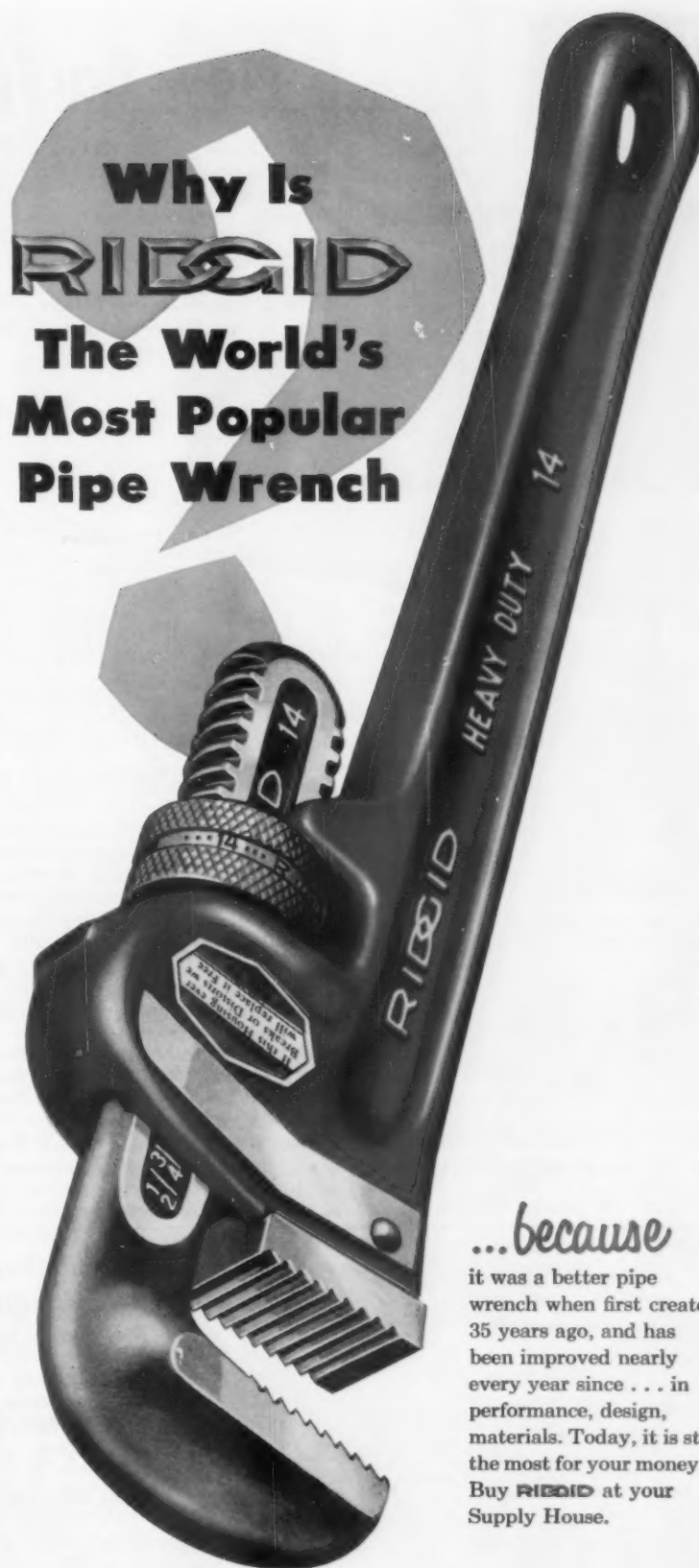
JOHN H. HINMAN, International Paper Co. board chairman, to whom this Pulpwood Annual edition of PULP & PAPER was dedicated last year (see p. 87, July 1957), was recently presented the annual Forest Farmer award of the Forest Farmers Assn. in Monroe, La., for outstanding contribution to forestry. . . . T. S. "TOMMY" JONES, industrial relations mgr., Dryden Paper Co. Ltd., was elected gen. chairman of the Northwestern Woods Branch, Ontario Pulp and Paper Makers' Safety Assn., succeeding R. S. YOUNG, asst. woods mgr., Great Lakes Paper. W. THOM, woods mgr., Kimberly-Clark Pulp and Paper Co. of Longlac, was named honorary chairman and W. E. MAIR, Marathon Corp. of Canada, is new vice chairman. . . . Kimberly-Clark's woodlands dept. under direction of J. B. MILLAR, mgr., was reorganized. L. E. GEORGE is chief forester for the dept., L. M. ARGETSINGER is asst. to woodlands mgr. and T. R. POWELL is mgr. of Lake States operations. . . .

ROBERT L. JORDAN, former chief of information and education for Montana State Forestry Dept., Missoula, Mont., was appointed district mgr., San Francisco, American Forest Products Industries. . . .

Industrial Forestry Assn. elected H. O. PUHN, gen. woods mgr., Simpson Logging Company, Shelton, Wash., pres. and E. F. HEACOX, managing forester, Weyerhaeuser Timber, Tacoma, vice pres. G. D. KNUDSON, vice pres., Willamette Valley Lumber Company was re-elected treasurer; N. E. BJORKLUND and W. D. HAGENSTEIN were re-elected asst. secretary and exec. vice pres. respectively. A. J. SANDOZ, gen. mgr. of International Paper Co.'s Western Timber Dept. at Longview, is re-elected as a trustee of the Abernathy Forest Assn. . . .

THOMAS E. GREATHOUSE, formerly in charge of planting, direct seeding operations and seed orchards in Olympic National Forest, joins division of timber management, regional office, U.S.F.S., Portland, Ore. . . . CARL E. MAYER, acting head of Forest Survey timber inventories in Ore. and Wash., moves to the Northeastern Forest Experiment Station, Upper Darby, Pa., to be in charge of a 12-state forest survey. . . . THOMAS H. BURGESS, asst. regional forester, U.S.F.S. office of State and Private Forestry, Portland, Ore., has been cited for outstanding achievements in forest fire prevention. . . .

HANS MILIUS, forester of Powell River Co.'s Brooks-Scanlon, Inc., Bend, Ore., reports his staff is mapping forest soils on company-owned lands cataloging such factors as soil depth, amount of fine particles, slope, exposure, elevation and rainfall. . . .



*...because*

it was a better pipe wrench when first created 35 years ago, and has been improved nearly every year since . . . in performance, design, materials. Today, it is still the most for your money. Buy **RIDGID** at your Supply House.

**The Ridge Tool Company, Elyria, Ohio, U.S.A.**

## New Design A-C Motors ... Are Fully Accessible



**Applications:** For all horizontal utility and industrial drive applications.

**Advantages:** The stator is accessible for thorough inspection. Enclosures are quickly removed, easily replaced and require no realignment. The protruding conduit box is eliminated. Noise mufflers, air filters and all accessories can be added without any redesign of basic parts. Standardization is possible because each F/A motor frame size replaces 16 of the previous line. Immediate service on outline drawings and faster service on replacement parts are provided. Improved production schedules permit faster delivery. The F/A motor design permits easy cleaning and drying.

**Specifications:** Enclosure is merely bolted to the motor base, making the wound stator fully accessible. The wound stator is accurately positioned on the base to give correct air gap and is held solidly in place by four stator-base locator joints. The two smallest frame sizes of the F/A motor replace 16 frame sizes of squirrel-cage motors, 16 frame sizes of wound-rotor motors and 8 frame sizes of synchronous motors. The F/A motor permits the different sizes (250 to 7,000 hp) and types (30 through 51 frame size)

to fit into only six basic enclosures and 30 frame sizes. Previously, 450 frame sizes were used.

**Supplier:** Westinghouse Electric Corp., P.O.B. 2099, Pittsburgh 30, Pa., EXpress 1-2800.

## New Steam Heating Mixer ... Saves on Horsepower



**Applications:** Mixing high density pulp with steam.

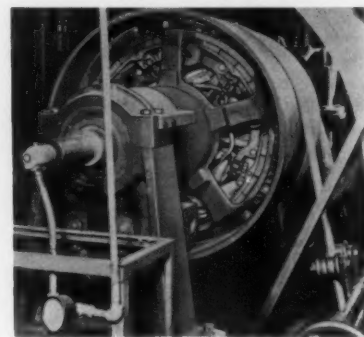
**Advantages:** Considerable savings in horsepower cost per ton are gained while still maintaining accurate temperature increase, without increasing normal steam requirement. Performance of this single shaft mixer, when used as a steam mixer, closely parallels conventional double-shaft mixer effect.

**Specifications:** Mixer incorporates a single through shaft with curved mixing arms, installed in an inclined housing. Mixer inlet and outlet are in a straight line, simulating vertical pipeline flow. Pulp is retarded in this downward flow by a series of alternate horizontal shelves or trays. Steam inlets are adjacent to these shelves. Repeated action of the paddles sweeping pulp from shelf to shelf across paths of incoming steam gives complete and

rapid dispersion. The units are V-belt driven from 30 hp, 900 rpm motors, supported on integral adjustable bases. Rated capacity of units now in operation is 200 tons per day of high density pulp. Units are available for various production requirements including a 500 ton/day model.

**Supplier:** Improved Machinery Inc., P.O. Box 503, Nashua, N.H., NASHUA 4270.

## Variable Speed Clutch Pulley ... Does Not Overheat

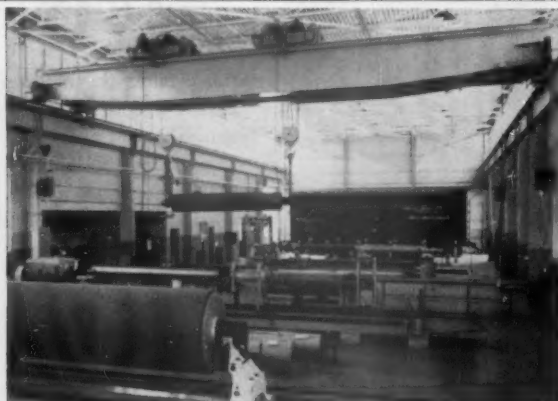


**Applications:** As main drive clutch on paper machines.

**Advantages:** This clutch and pulley can be slipped and inched during starting of the sections, removing wraps from driers, etc., without overheating. It allows the section to be brought up to speed gradually and heat generated by clutch slipping is dissipated by many cooling fins between the clutch shell and belt track.

**Specifications:** Variable speed clutch pulleys with cone faces for paper machine drives come in torque ranges up to 192,000 in. lbs. and cone sizes from 26 in.

**Supplier:** Horton Mfg. Co., Inc., 1179-15th Ave. S.E., Minneapolis 14, Minn., FRanklin 1-5931.



## Simplify Paper Roll Handling Problems with

# EUCLID CRANES

Paper Mill Cranes are a specialty of ours. We've helped build our reputation through close cooperation with production supervisors and engineers in the paper industry.

Shown here is a 30 ton, 5 motor, double box girder Euclid crane in operation at a large southern roll reconditioning plant.

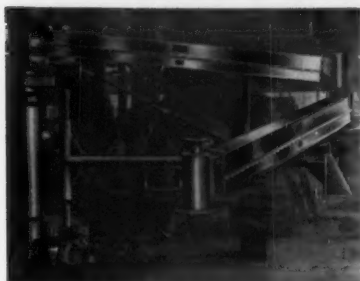
It is floor controlled for convenient operation and incorporates two independently operated trolleys. We'll be glad to discuss your crane or hoist requirements with you.

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## Double-Swivel Airlide ... Saves Time and Labor



**Applications:** For handling dry pulverized, crushed and granular material pneumatically in bulk.

**Advantages:** Fluidizing conveyor feeds an unlimited number of locations within its scope of movement, eliminating time and labor spent in positioning a bulk materials discharge point above multiple receiving inlets. The unit is easily maneuvered by one man from one discharge point to another. Permanently set up at primary bulk delivery point, it can be folded back out of the way when not in use, solving space and clearance problems. It can be used as an isolated unit or part of an integrated system.

**Specifications:** Parallel upper and lower chambers are separated by a special gas permeable diaphragm. Air under low pressure, passed from lower chamber through diaphragm, partially fluidizes material in upper chamber, reducing friction and giving it some characteristics of a liquid so it flows under force of gravity. In double-swivel system, discharge end of one Airlide length is hinged on common shaft with inlet end of the other. Material thus passes by gravity into the second, while at same time discharge end of the second can be swung nearly a full 360°.

**Supplier:** Fuller Co., Catasauqua, Pa., COngress 4-2841.

## Lubrication Units ... Can Be Key-Locked



**Applications:** Automatic lubrication of machines.

PULP & PAPER — July 1958



## RE-NEW-COAT Resurfaces, Protects and Decorates Masonry Buildings In One Application!

Re-New-Coat, with an outstanding record of performance even under severe conditions, actually anchors itself into masonry surfaces and becomes part of the structure itself. It is resistant to alkali, acid fumes, smokes, gases and other corrosive factors. Remarkable adhesive qualities of Re-New-Coat, due to presence of Devran Epoxy Resin, insure a firm tight bond to masonry.

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**Advantages:** Cabinet can be key-locked to prevent unauthorized personnel from tampering with adjustments. Air filter automatically removes liquids and solids from air supply and drains collected moisture. Solenoid valve starts and stops lubrication as machine power is turned on and off. Pressure regulator reduces main line air pressure to desired working pressure and holds it constant. Pressure switch actuates alarm or shuts down machine if air pressure fails. Lubricator delivers a controlled amount of air-borne lubrication to all bearings, gears, chains and cams and offers visible oil feed and oil supply. One-piece top and side panel of splash-proof cabinet can be removed for easy access to components.

**Specifications:** Cabinet size is 10% in.

wide, 13% in. high and 7% in. deep. Available as optional equipment is liquid level control that actuates alarm or stops machine when oil supply needs replenishing. Also available for models with 1-qt. oil capacity is electric heater which maintains a set lubricant temperature and viscosity.

**Supplier:** C. A. Norgren Co., Englewood, Colo., SUNset 1-5586.

### Wastewood Chipper ... Has Horizontal Infeed

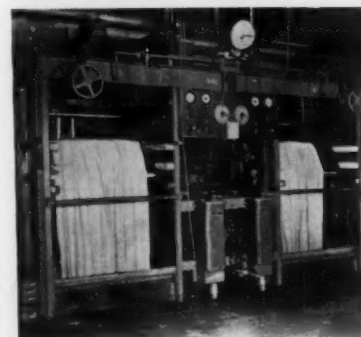
**Applications:** Chipping wastewood.

**Advantages:** Use of horizontal rather than gravity feed permits economies because minimum head room is required and inclined wastewood conveyors are not necessary.

**Specifications:** Two new models are available. The 53 in. disc 4-knife chipper is designed to handle wastewood of mills with 15M-30M daily production. Chipper has large opening horizontal feed spout and easily opened

disc casing which can have either bottom or overhead discharge. The 53 in. disc 10-knife chipper is the first machine with a modified convolute face plate design. Face plates set up an auger action, pulling wood toward the disc in a smooth flow and producing very high quality chips.

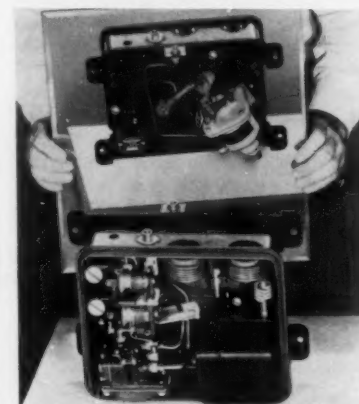
**Supplier:** Sumner Iron Works, P.O. Box 1006, Everett, Wash., CEDar 2121.



### New Huyck Felling Mill At Alabama Felt Plant

Huyck Felt Co., Rensselaer, N.Y., has installed a large double endless felling mill at its plant in Aliceville, Ala. This further augments the facilities at this largest modern mill in the world producing papermakers' felts.

### Pneumatic Relay ... Computes, Compensates

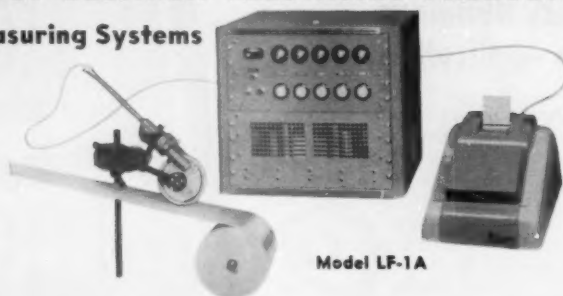


**Applications:** For pressure-temperature compensation or remote adjustment of proportional band in single or multi-element pneumatic control systems.

**Advantages:** Bellows operator posi-

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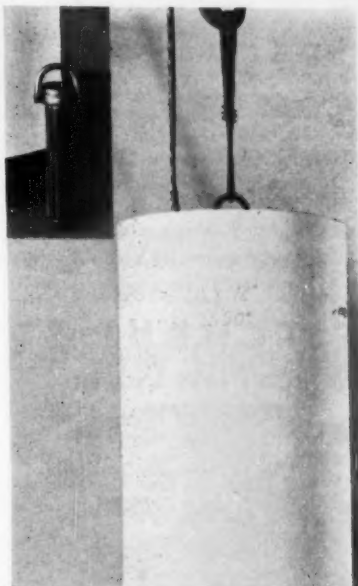
tions the proportional band adjustment in the relay. It may be actuated by a pneumatic signal from a remote adjuster or from a pneumatic transmitter. Function-generating cam is easily shaped on the job. Relay multiplies or divides one pneumatic signal representing a measured variable by some predetermined function of a second variable. Standard unit also adds and subtracts pneumatic signals and provides proportional control action.

**Specifications:** Uses standard SAMA signal ranges of 3-15 psig and 3-27 psig. Approximate size is 8½ x 11 x 9 in.

**Supplier:** Bailey Meter Co., 1050 Ivanhoe Rd., Cleveland 10, O., Glenview 1-4600.

### New Roll Lift

... Improves Roll Handling



**Application:** For handling paper rolls. **Advantages:** Replaces grab truck in many situations. Saves storage space since no room is needed between rolls for pickup. One operator can do the

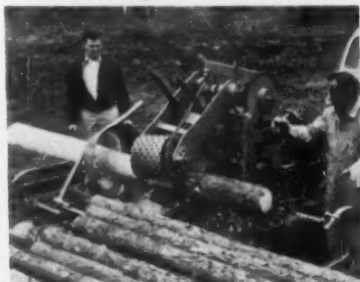
whole job by releasing and engaging the roll lift by a simple valve on the lift truck. Serrated steel or rubber covered leaves of the lift provide a no-slip grip on roll core, preventing core and roll damage.

**Specifications:** Sure-Grip roll lift operates pneumatically or hydraulically and can be used with either fork lift truck or overhead crane. Available in sizes to fit cores from 2½ in. diameter up and can lift rolls up to 6,000 lb. in weight.

**Supplier:** Tidland Machine Co., P.O. Box 1014, Camas, Wash.

### Portable Debarker

... Averages 40 fpm Feed Rate

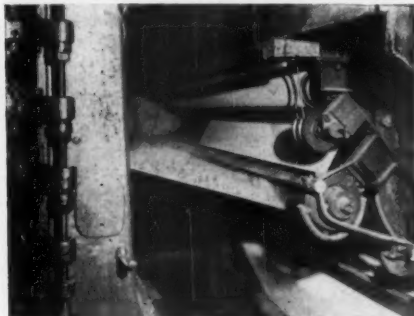


**Applications:** For debarking all species during all seasons at site of logging operations.

**Advantages:** The Morbark debarker is a new, completely portable machine developed and tested by Norval Morey of Winn, Mich. The rotating, circular debarker head has 16 special tipped nubs protruding from its outer surface. Use of nubs rather than knives makes possible debarking of all species during all seasons with minimum wood loss.

**Specifications:** Debarker is trailer mounted, weighs 2,600 lb. and has a 30 hp industrial engine. It is operated by two men. Feed rate varies with stick diameter but average wood approximates 40 fpm. Production varies with species, size and season but averages 3 to 5 cords per hr.

**Supplier:** Hiabob Hydraulics, Ely, Minn.



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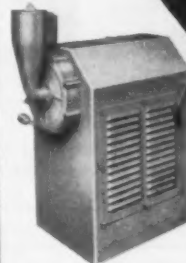


Otto Berggren, a Senior Research Engineer in Huyck's Development Dept., is devoted to providing the paper industry with numerical measurements of felt performance. A pulp and paper graduate of Syracuse U. and an experienced papermaker, he is widely known for the application of the Beta Ray Gauge to felts. Otto and his group are proud of their service record and will continue to make the latest of instruments and techniques available to all papermakers.

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Back view showing  
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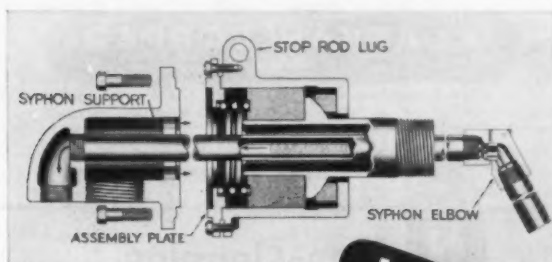
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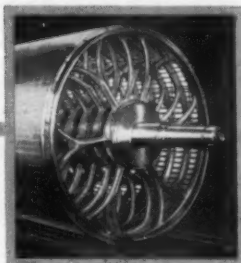


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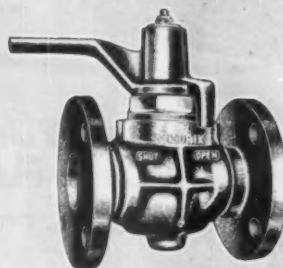
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## How It Started

It was in the August 1947 issue of PULP & PAPER that we started our regular PULPWOOD SECTION. As a "sub-heading" under the new department heading, we used these words of wisdom:

"The most effective way to encourage the growing of trees is to develop profitable reasons for cutting them down"—A. G. T. Moore, Southern Pine Assn. executive, in 1938.

Of course, for 20 years prior that 1947 issue, PULP & PAPER had published numerous important articles on pulpwood problems and their solutions. But in 1947 it was decided there should be a regular section, and it has been extremely well received by key men in this industry—presidents of paper companies or pulp companies, mill managers, production supervisors and technical executives as well as the wood producers.

Everyone with important responsibilities in this industry wants to know what is going on in the woods and the wood preparation plants. Unquestionably the greatest advances in cutting operation costs, improving efficiency of processes and development of new machines and processes will be at this end—from the tree up to the pulp mill. Of course, wood is the most important raw material of this industry and its long term future supply must be assured. Which is another reason for this interest among so many of our readers.

## Champion Sees Eye to Eye

Our thinking in creating the PULPWOOD SECTION seems to have received an emphatic endorsement by at least one major company, Champion Paper & Fibre Co. Its woodlands representatives are always called into conferences at which pulp problems are discussed. Mr. Golden of Champion, writing an article which appears in this issue in the PULPWOOD SECTION, states that each step in this industry—from forest to ultimate consumer—is an integral part of the whole and only by cooperation and co-ordination can the industry become truly stabilized and form a true pattern for profit.

Only in the last year or two has the industry moved toward a closer liaison between mill technicians and forest technicians. TAPPI has created one of its newer committees to foster such cooperative research. A forester needs to know what kind of trees make the best pulp, before he decides what kind of trees to grow. And mill technicians, as well as operators, need to know more about what foresters are doing and can do.

Nearly 11 years of PULP & PAPER's PULPWOOD SECTION have been dedicated to these objectives, aiming for overall advancement of the industry.

## Hats Off to APA—A Job Well Done

Once each year, in this July issue, PULP & PAPER has the privilege of publishing the annual papers of the American Pulpwood Assn.

It is generally recognized that these papers are the cream of the crop of useful publications dealing with pulpwood matters. This year, it seems especially significant that most of them deal with efforts to stabilize wood production and

to cut costs. Also, to discover more realistic and scientific ways of evaluating forests and forest lands for more accurate accounting, for wiser investment and for fairer taxation.

It's quite a PULPWOOD SECTION this month. Our hats off to George Amidon, new APA president, Lucian Whittle, who finished his term as APA president this year, Bill Bromley, executive secretary, and all their APA colleagues, including past officers. They have developed one of the most successful and useful associations in this industry.

For the same purpose that causes Champion to bring its woods men into mill staff meetings, we recommend that all PULP & PAPER readers may gain useful knowledge by reading the PULPWOOD SECTION this month.

## Russian Paper Journal Carries Ads!

Recent issues of *Bumazhmaya Promyshlennost* ("Paper Industry"), the Russian paper industry magazine, carry advertisements of Western equipment and supply companies (West German, British, etc.).

This is an unprecedented innovation and we don't know quite what to think of this trend.

It is suggested that it may represent a flash of understanding and appreciation in the Russian economy of some of the advantages that are found in the western competitive business structure. Perhaps, even though Madison Avenue is a word which our own politicians in the United States like to utter with a bit of a twist of the mouth, to denote scorn, the Russians seem to like some of the things that characterize that thoroughfare.

We haven't forgotten the sensation caused not too long ago by a U.S. business catalog on display at a Yugoslavian exposition. Advertising and commercials may turn out to be our best ambassadors of good will and peace.

At least, they may open the eyes of some of the populace behind the Iron Curtain. They may do more than armies or peace conferences have yet succeeded in achieving.

## "Boz" Passes On

An important contributor to whatever successes PULP & PAPER has enjoyed during his 11 years of loyal service has passed on. Morris F. Bosworth, who had been ill for several months, died on May 28 in St. Petersburg, Fla., where he had retired to live with relatives. He was buried in Chagrin Falls, O.

But more important than his contributions to PULP & PAPER were his contributions to better and happier lives for scores of friends in the industry and business world. "Boz" is remembered fondly and gratefully.

## Speaking of Anniversaries . . .

If you have some friends to remember:

1958 is Beloit Iron Works' 100th; Bulkley, Dunton's 125th; Sandy Hill Iron & Brass Works' 100th; Thilmany Pulp & Paper Co.'s 75th. . . .

1959 will be KVP Co.'s 50th and Appleton Machine Co.'s 75th.



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